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November, 1944

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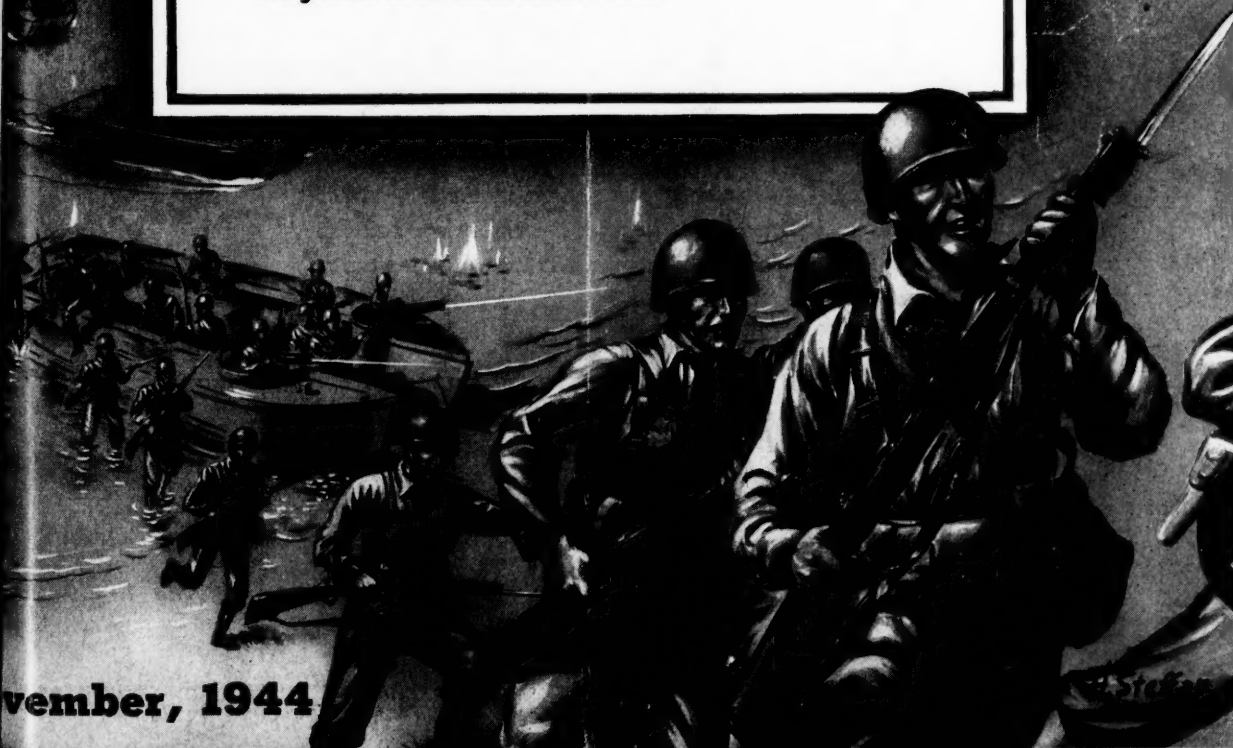
AGENCY AND INDUSTRY

MANUFACTURERS RECORD

SHALL IT PEAL OR TOLL?

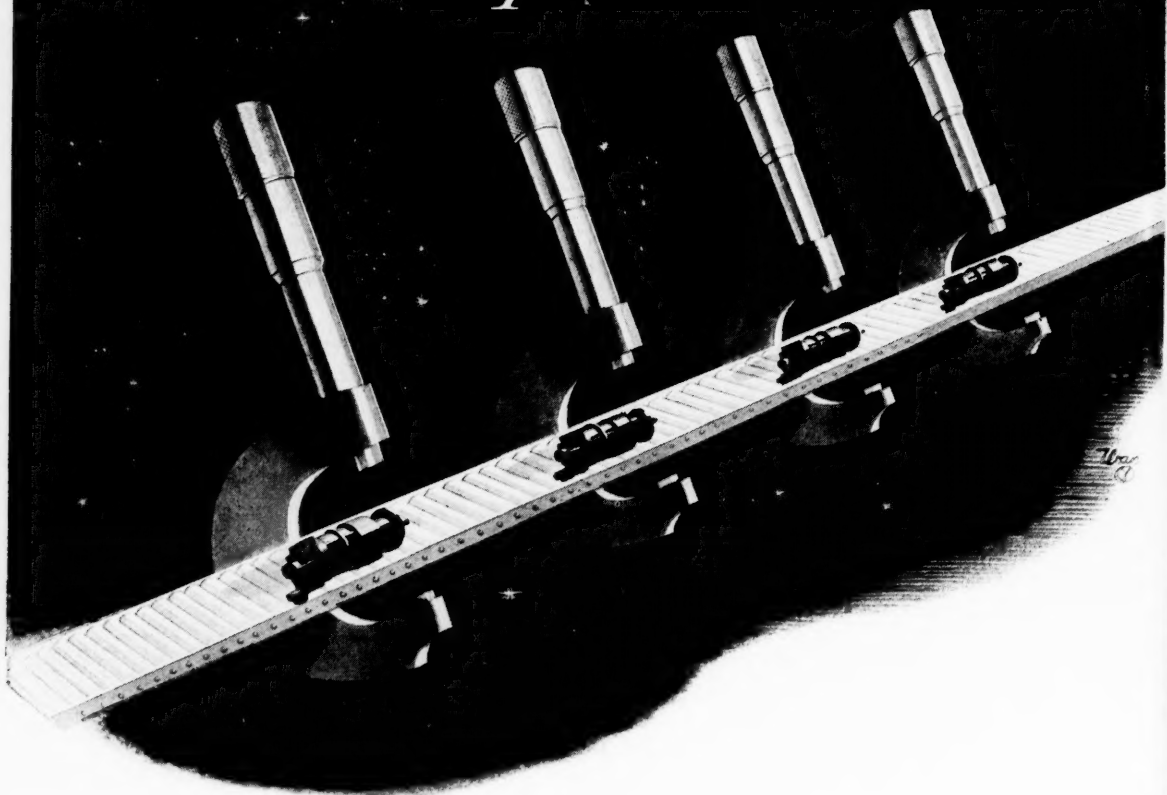
The Congress of the United States is devoting time and thought to the subject of mending the Liberty Bell.

We earnestly hope that this patriotic duty will not absorb the entire attention of Congress, worthy though that objective may be. Attention also should be devoted to the restoration of Liberty itself, so that OUR bell, when it is repaired, can sound out again a proclamation of liberty that will ring true to all American ears.



PRECISION ENGINEERING

— *at production line cost* —



IN 3 weeks Jack & Heintz designed a unique retraction motor for the Air Forces ... made important improvements in motor performance and life that had never before been thought possible ... and in 2 more weeks were producing it in production-line quantity at a lower price to the government. When the war is won this Jack & Heintz ability will be available to industry—to help you with better parts or products, engineered and produced with new precision at production-line speed and low cost, to meet your postwar competition. We would like to show you this unique combination at work now. Jack & Heintz, Inc., Cleveland, Ohio, manufacturers of aircraft engine starters, generators, gyro pilots, gyro flight instruments, magnetos, motors.



JACK & HEINTZ
Incorporated

MANUFACTURERS RECORD

ESTABLISHED 1882

A Publication for Executives

Volume 113 NOVEMBER, 1944 Number 11

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MANUFACTURERS RECORD PUBLISHING CO. Publishers of MANUFACTURERS RECORD, CONSTRUCTION (daily), CONSTRUCTION (monthly) and BLUE BOOK OF SOUTHERN PROGRESS.

FRANK GOULD - - - - - President
WM. M. BEURY - - - - - Vice President and Editor
MAJOR R. LISLE GOULD - - (U.S.A.A.F.) Sec. and Treas.
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H. B. FRENCH - - - - - Advertising Manager

Main Office: Candler Building, Baltimore 3, Md.
Phone: LExington 7065

BRANCH OFFICES:

New York (1)—393 Seventh Ave., Room 1615. Phone: Penna. 6-3515.
Chicago (4)—28 East Jackson Blvd., Room 712. Phone: Harrison 5867.
Charlotte, N. C.—Sharon Hillis Road. Telephone 33 875.
Cleveland (15)—1836 Euclid Ave., Room 526. Phone Main 9337.
Subscription Rates: One Year \$3.00. Two Years \$5.00.
Single Copies 25c, back numbers over 3 months old 50c.
Entered as second class matter at the postoffice, Baltimore, Md., U.S.A., under act of
March 3, 1879. Volume 113, Number 11, Monthly.

Georgia's Mineral Output Totals Over \$20 Million

Nonmetallies, principally clay, stone, and cement, led among minerals produced in Georgia in 1943, the Bureau of mines announced recently in estimating the State's total output of all mining products for the year at \$20,997,000. Of this sum, \$19,285,000 came from the non-metallic minerals. Metallic minerals produced last year were valued at \$1,587,000 and fuel (coal) at \$125,000, according to information compiled by the Bureau's Economics and Statistics Branch in cooperation with Georgia's Division of Mines, Mining and Geology.

Among the nonmetallies, raw clay and clay products were estimated at \$8,275,935, and stone at \$5,373,879. Figures on cement production are confidential. Other important nonmetallies in the State's output of natural resources last year were talc, barite, slate, fuller's earth, mica, and sand and gravel. Georgia is one of the nation's leading producers of fuller's earth, which is used extensively for removing objectionable colors from petroleum, fruit juices, and other liquids.

Oklahoma Minerals Pass Quarter-Billion Mark

With petroleum, natural gas, natural gasoline, and liquefied petroleum gases to the fore, Oklahoma produced \$253,284,000 worth of minerals in 1943 to give the Sooner State seventh position in mineral production in the United States, says the Economics and Statistics Branch of the U. S. Bureau of Mines.

Oklahoma retained first place in zinc production and ranked third in the value of petroleum gases and natural gasoline produced, fourth in crude petroleum, and seventh in natural gas. These fuels surpassed zinc and lead in dollar values. Non-metallic minerals, principally sand and gravel, stone, cement, clay, gypsum, lime and salt, were valued at 10.5 million.

Wallace and Campbell on Board of G. M. & O. R. R.

R. G. Wallace, executive vice president of Masonite Corp., Chicago, and A. B. Campbell, president of Mississippi School Supply Co., Jackson, Miss., were recently elected to the Board of Directors of the Gulf, Mobile and Ohio Railroad.

Mr. Wallace succeeds the late Ben Alexander, president of Masonite, while Mr. Campbell succeeds E. A. Stephens, New Orleans automobile and radio executive, who resigned. In addition to being executive vice president of Masonite, Mr. Wallace is executive vice president and a director of Masonite Co. of Canada, Ltd., and a director of General Fabrication, Inc., Attica, Ind. Mr. Campbell is well-known in Mississippi business circles, being a director of the Jackson Capitol National Bank and the Mississippi Power and Light Co., and a trustee of Millsaps College.

War Costs Drop

United States Government war expenditures for September amounted to \$7,104,000,000, a decrease of \$694,000,000, or nine per cent, from the total of expenditures in August, according to figures compiled by the Treasury Department and announced by the War Production Board. This is the smallest amount expended in any one month for war purposes during 1944.



**The Sign of
Quality!**

VALVES HYDRANTS

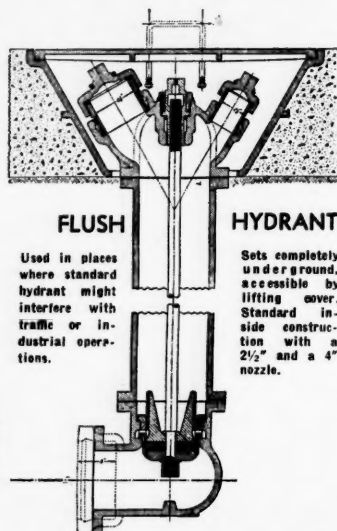
and pipe line accessories



Gate Valve



Check Valve



FLUSH

Used in places where standard hydrant might interfere with traffic or industrial operations.

HYDRANT

Sets completely underground, accessible by lifting cover. Standard inside construction with a 2 1/2" and a 4" nozzle.

M & H GATE VALVES are cast iron body, bronze mounted, with double-disc parallel seat or solid wedge top, non-rising stem or outside screw yoke. They come either with flanged or screwed connections. Valves for fire protection lines are marked "UA-FM" to denote approval of both the Underwriters and the Factory mutuals.

M & H FIRE HYDRANTS are revolving head, dry top, bronze mounted. They also are approved by "UA-FM". Entire main valve assembly is removable through barrel without digging. Special Traffic Model is fitted with breakable bolts and stem coupling, designed to break at ground line under impact. Repairs are made simply by renewing bolts and coupling, without shutting off the water.

M & H PRODUCTS INCLUDE

FIRE HYDRANTS
GATE VALVES
TAPPING VALVES
WALL CASTINGS
SPECIAL CASTINGS
TAPPING SLEEVES
CHECK VALVES
FLOOR STANDS
EXTENSION STEMS

SHEAR GATES
MUD VALVES
VALVE BOXES
FLAP VALVES
SLUDGE SHOES
FLANGE AND
FLARE FITTINGS
FLANGED FITTINGS
B & S FITTINGS
CUTTING-IN TEES

M & H VALVE AND FITTINGS COMPANY

ANNISTON, ALABAMA

Little Grains of Sand

*"Little drops of water, little grains of sand,
Make the mighty ocean, and the pleasant land."*

Your wife or your mother, if she is like the wives and mothers that we know, believes in a periodic housecleaning.

No matter how thoroughly the home is swept and dusted and scrubbed, how cleanly and neatly it is regularly kept in order, housecleaning time rolls around and the housecleaning is done.

We survive the ordeal of housecleaning at home and we live in clean houses because of it. Housecleaning is not always pleasant but it pays. It preserves our homes for the children who follow us.

The War Food Administrator, Marvin Jones, announces that the Federal government will buy direct from farmers all of their 1944 cotton crop at its own parity prices for which a schedule of loans has been arranged.

This obviously means that the government proposes to fix the price for raw cotton, buy it from the producer, sell it to the mill or merchant at the same price at which it was first bought, making the cotton exchanges of no further use and eliminating also thousands of middlemen who have been engaged in the private business of cotton merchandising.

And so goes the New Deal in its historic policy of invading and controlling the realm of private enterprise, both as it relates to the production, distribution and consumption of goods.

The American Library Association has proposed that the millions of army camp library books be used to start post-war rural libraries. The millions of such books would help greatly to meet the needs of 35 millions of rural and small-town Americans now without library facilities. It is an idea worthy of support and action.

Most of the planners, by innuendo or plain threats, say that if business doesn't maintain record employment, government will. And many of them seem to be hopeful that they can lay enough stumbling blocks in the way of private enterprise so that they will have an excuse for saying that government must take over.

Imagine the spirit of optimism that would prevail in this nation if business and industry felt that our government and the powerful bureaus that now dominate it, were wholeheartedly in favor of promoting private enterprise under fair and reasonable regulation. If risk capital was encouraged to take a chance, it is safe to say that our natural resource industries would experience new growth after the war, as the world is going to want the products of our mines, farms and forests in unheard of quantities, in exchange for the goods they must sell to us. Why not uphold the American system for Americans, instead of aping in so many ways the socialized systems of

(Continued on page 8)

MANUFACTURERS RECORD FOR

How Much Can You Cut the Cost OF DEPOSITING WELD METAL?

The table at right shows typical cost reductions made possible by carefully selecting the largest size electrode practical for the job at hand. This accurate study takes into account all factors such as labor, overhead, power, electrode costs, etc. Note the progressive lowering of cost as electrode size is increased.

That's one reason why WSR (Welding Service Range) is so important. It tells you exactly the usable welding current your machine will deliver, from minimum to maximum. You know what size electrodes you can properly handle.

The ample capacity of P&H Welding machines is due to their more liberal use of copper—more efficient operation. Start now to speed all kinds of welding work—and cut your welding costs. Ask about the WSR rating for the P&H Arc Welder most suitable for your class of work.

Cost per pound of depositing weld metal with AWS, E-6010 Electrode.

Electrode Size	Cost per Pound
1/8"	
5/32"	\$2.56
3/16"	2.05
1/4"	1.72
5/16"	.99
3/8"	.74
	.55

P&H WSR Models are built in a range of capacities to handle all sizes of electrodes from 1/8" to 3/8"—all with a single heat control. "Visi-matic" Calibration enables the operator to select the exact current required for each of the three basic groups of electrodes.



WSR (Welding Service Range) ratings are given for all P&H Arc Welders. Ratings are based upon the actual output of each machine, enabling you to buy more wisely on the basis of cost per ampere.

General Offices:

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Milwaukee 14, Wisconsin

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ARC WELDERS • EXCAVATORS • ELECTRIC CRANES • MOTORS • HOISTS • WELDING ELECTRODES

Ask also about P&H Welding Electrodes, available in all sizes and types for production and maintenance welding. Send for literature.

Canadian Distribution: The Canadian Fairbanks-Morse Co., Ltd.

NOVEMBER NINETEEN FORTY-FOUR

7



APS PLASTEEL ROOFING

1 ALL THE ADVANTAGES OF STEEL
Light, strong, rigid, easily handled.

2 PLUS WEATHER-TESTED COMPOUND
Resists extremes of weather, moisture, acid fumes, salt-air corrosion, etc.

3 PLUS EXTERIOR MICA COAT
Ornaments and adds protection. Attractive silver-gray finish needs no upkeep, no painting!

All these advantages—and more—are yours if you use APS PLASTEEL Roofing and Siding. Available for immediate shipments in standard corrugations for industrial as well as farm use.

PROTECTED STEEL PRODUCTS

General Office and Plant,
WASHINGTON, PA.

(Continued from page 6)

Europe, where some bureaucrat throttles the opportunity of the individual. It is time the people of this country began to work to save our American system, instead of adopting alien philosophies.

Germans are smart, inventive, industrious people. Therefore, the Germans' attributes should be employed in behalf of mankind.

The situation is like harnessing an outlaw horse to a plow or a wagon and making him work. It would be senseless to shut the horse in a stable or confine him to a heavily-wired pasture simply because he is an outlaw, if he can be made to pull a load by fitting him with curb bits, kicking straps and a twister on his nose.

For immediate application to the 1,500,000 veterans already discharged from the services, the War Manpower Commission has abolished all manpower controls over veterans of the present war. This leaves them free to take any kind of a job. Under the new rulings (1) Veterans will not be required to secure or present statements of availability in order to change jobs; (2) may be hired by any employer without referral to the U. S. Employment Service or other authorized referral channels; (3) will be entitled to a referral as a matter of right, to any job of his choice, without regard to the essentiality or priority status of such job; and (4) may be hired without regard to employment ceilings.

An engineering trade magazine recently received a literally translated letter from a Latin-American magazine which contained the sentences:

"I am needing a male water sheep. Please tell me where I could find one."

After much head scratching, one of the editors suddenly realized that the thing made sense after all. The inquirer wanted a hydraulic ram!

Thinking men everywhere will agree with the currency experts of the Economists' National Committee on Monetary Policy, who, in the interest of public confidence in our currency advocate that the following monetary laws be promptly repealed:

1. The Thomas Inflation (greenback) Law of May 12, 1933.

2. Sections 8 and 9 of the Gold Reserve Act of 1934 which give the Secretary of the Treasury and the President power to fix the buying and selling price of gold at any point the Secretary "may deem most advantageous to the public interest."

3. Those provisions of the Gold Reserve Act of 1934 which apparently give the President the power to devalue our silver and subsidiary coins to the same extent that he devalued the gold dollar.

Home is where you work, according to a recent ruling of the Tax Court which disallows traveling ex-

(Continued on page 10)

MANUFACTURERS RECORD FOR

TODAY—

Our entire organization is concentrating upon speeding Victory in the construction of Bombs, Ship Sections and other essential war production.

WHEN PEACE COMES—

Our enlarged facilities and our added personnel, will be better prepared to serve you than ever before.

This modern plant was financed entirely with company funds, without cost to the Government.

**BARS — SHAPES — STRUCTURALS
PLATES and SHEETS**

Any Quantity—Immediate Delivery from our Warehouse at 903 Third Avenue

SOUTHERN STEEL WORKS

KIRKMAN O'NEAL, *President*

745 NORTH 41st STREET



BIRMINGHAM, ALABAMA



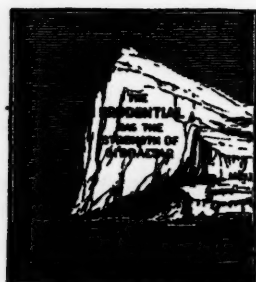
NOVEMBER NINETEEN FORTY-FOUR

IT'S GOOD BUSINESS

A mind free from worry is free to succeed.

A man well-insured escapes anxiety as to his family's future if its breadwinner should be taken.

IT'S GOOD BUSINESS TO BE
ADEQUATELY INSURED



The PRUDENTIAL
INSURANCE COMPANY OF AMERICA
A mutual life insurance company
HOME OFFICE NEWARK, NEW JERSEY

(Continued from page 8)

pense of two Supreme Court judges in North Carolina between their residences in other towns and Raleigh, where the Court sits.

Orderly government is the vehicle by means of which the social structure maintains and perpetuates itself.

Every man, in no matter what walk of life he may find himself, has a definite moral responsibility to contribute to the welfare and happiness of the social structure of which he is a part.

In time of war it is particularly contemptible for any citizen of the United States to place his self interest and personal ambition above the safety and security of his nation that is fighting for its life and its ideals against implacable and venomous foes.

All the correspondents were struck at Quebec, as they had been many times before, with the powerful and dominant personality and burning phrases of Mr. Churchill. In any group he stands out as the master mind. Chamberlain ruefully acknowledged this when he said, half playfully and half in earnest: "In any meeting of the cabinet when Winston comes roaring in with all 12 cylinders of his mind sparking, everyone else must become silent."

One reason why Mrs. Roosevelt doesn't like the British prime minister is that he commands every situation in which he is placed. His influence over Mr. Roosevelt is marked. He knows how to have his way. Is it a wholesome thing for America that this friendship, a "blazing" one as Mr. Churchill calls it, should be so marked?

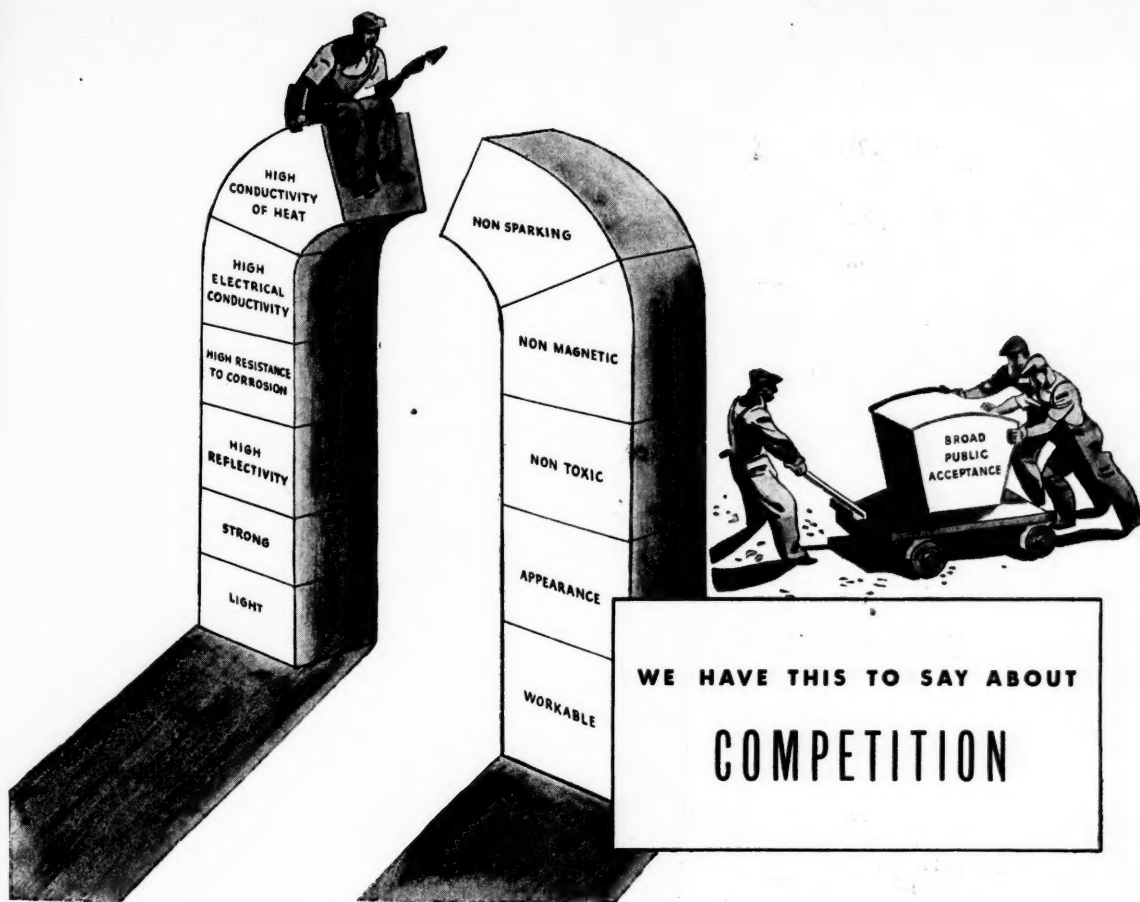
Federal Postal employees, the most neglected group in the entire Government employment structure, want a little more pay and richly deserve it. Their grievances are just and many against the antiquated pay basis on which they now work, for instance, the arrangement which actually gives them \$1.44 less for working on Saturday, which is overtime, than for the same work on Friday.

Dollar bills circulate rapidly in these war boom days; their average life is only nine months. Five dollar bills, not nearly as active travelers, circulate for three years. We fear that those cursed pennies that clutter up our pockets and which we mistake for dimes will last forever.

Raymond Moley, former Roosevelt braintruster, who describes himself as a Democrat and the son and grandson of Democrats, and who wants to see the party re-established as a truly national party says: "It can't do that if it wins this election. It can become a national party again if it loses. There is only one doctor good for the Democratic party, and that is a doctor named Dewey."

(Continued on page 12)

MANUFACTURERS RECORD FOR



Put yourself in our place and you'll understand why we mean it, when we say "We welcome competition in the aluminum industry."

You would feel the same way after more than fifty years of pioneering a new metal, with the responsibilities of research, development, distribution and service depending largely upon you.

The vast expansion of aluminum production to win the war has made scores of companies, especially in the field of fabrication, and thousands of workers familiar with the workability and characteristics of aluminum. And now they are helping us set the keystone of broad public acceptance to com-

plete the strong arch of aluminum service.

With these others to share our enthusiasm for aluminum—to seek new applications—to perfect new fabricating processes—to join us in telling the story of what aluminum can do—we see aluminum making its full contribution to modern living just that much faster.

Alcoa's 56-year-old research program will continue with its same broad and deep objectives: to develop sound facts upon which all users may rely; to bring the advantages of aluminum to the greatest number of people at the lowest cost.

ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM



NOVEMBER NINETEEN FORTY-FOUR

11

**Everlasting
Fastenings
by HARPER
Chicago**

The Harper organization is known as "Headquarters for Everlasting Fastenings" because it specializes in the manufacture of bolts, nuts, screws, washers, rivets and accessories made of Brass, Naval Bronze, Silicon Bronze, Copper, Monel and Stainless. Nothing in common steel. 4360 items in stock. Specials made to order. Write for 104 page, 4 color catalog and reference book. The H. M. Harper Company, 2645 Fletcher St., Chicago 18, Ill. Branch offices in principal cities.

(Continued from page 10)

May 16, 1942.

Washington, D. C.—President Roosevelt today ordered Earl Browder, No. 1 American Communist, released from the Atlanta Federal Penitentiary, where he had served only one year and two months of a four-year sentence for fraudulent acquisition and use of an American passport.

In ordering the release, the President declared that Browder's release would "have a tendency to promote national unity."

No wonder Donald M. Nelson was eased out of the WPB via of the backdoor of China. He does not see eye to eye with his commander-in-chief about economic problem No. 1. Mr. Nelson writes:

"Within the lifetime of the next generation the contribution of Southern resources, Southern industrial skills and Southern capital will bring the South into the vanguard of world industrial progress. And I believe further that the fresh social vitality of this new emerging South will contribute enormously to the shaping of a greater America and a richer world."

During the congressional campaign of 1938, Mr. Roosevelt in one of his fireside chats "reported to the people" that they should:

"Judge Parties and candidates, not merely by what they promise, but by what they have done, by their records in office, by the kind of people they travel with, by the kind of people who finance and promote their campaigns. By their promoters ye shall know them."

The excess profits tax on corporations should be abolished. Even Harry Hopkins now says so. This undoubtedly makes the voice of the American people a unanimous chorus.

Compulsory military training for all American youth over the age of 18 was urged in a recent address by James Forrestal, Secretary of the Navy, thus putting another Government official on record for an innovation that is rapidly gathering momentum in this country. He favors legislation that would call for 12 months continuous training, rather than three or four months in successive years suggested by some. The American Legion at its recent convention in Chicago endorsed peacetime military training. During the past week the Gallup poll put the measure before the public, with the result that 63 percent favor the training, 23 percent are opposed, and 14 percent are undecided.

We believe that small business and small farmers will disappear from our social and economic life unless the present unbearable burden of bureaucratic decrees, discriminatory political tactics and unnecessary restrictions is removed from their backs.



These stanzas were written under fire, "Somewhere in Italy," by Major Earl J. Rice, Field Artillery, United States Army, on leave from the Engineering Department of the Johnson Service Company.

REFLECTIONS FROM THE FRONT

Do production problems bother you
And schedules get you sore?
Your muscles ache; you think you're thru,
And the boss asks you for more!

And, at the end of daily grind,
Are there some provocations?
A crowded bus or car, you find,
To reach your destinations?

Now dwell a while with me, old friend,
To banish all your woe.
By censor's grace, to you I'll send
A word from G.I. Joe.

I've seen our boys up in the line,
In several foreign lands,
With weapons that were super fine—
Produced by skillful hands.

And every time we send a shell
To knock off "Jerry's" dome,
We thank the Lord—and very well—
For production lines back home.

For "Jerry" has some things to pour—
Bullets, shells, and flak.
But thru your efforts, we have more
That we can hand him back!



JOHNSON



Automatic

TEMPERATURE AND
AIR CONDITIONING

Control

JOHNSON SERVICE COMPANY, MILWAUKEE 2, WISCONSIN • DIRECT BRANCHES IN ALL PRINCIPAL CITIES

NOVEMBER NINETEEN FORTY-FOUR

21



AN UNFAILING ADVANTAGE

All Mercoid Controls are equipped exclusively with hermetically sealed mercury switches of special design and critically selected materials. ● Mercoid mercury switches are known the world over for their dependable service. They are not affected by dust, dirt or corrosion; nor are they subject to open arcing with its attendant consequences of pitting, sticking or oxidized contact surfaces, all of which, are likely to interfere with normal switch operation. ● That is why among other things, Mercoid Controls on the whole give you assurance of better control performance and longer control life—a distinct and unfailing advantage—the reason why they are also the choice of America's leading engineers for many important wartime industrial applications.

★ **MERCROID CONTROLS** ★
FOR HEATING, AIR CONDITIONING, REFRIGERATION, AND VARIOUS INDUSTRIAL APPLICATIONS.
THE MERCROID CORPORATION, 422 W. BELMONT AVENUE, CHICAGO, 41, ILL.

**When
you
think
of
STENCILS
think of... MARSH**

Stencil-Marking addresses on shipments helps get them to our armed forces *on time*. That's why Stencils are required type of marking for all war shipments. Marsh-Stencil your shipments and save up to \$600 annually in shipping room costs. To use, simply cut a stencil, stroke with a Marsh Stencil Brush and your shipment is legibly, permanently addressed. Three sizes to meet Gov't Spec. 1", 3/4" and 1/2". Write now for free booklet, prices.

MARSH STENCIL MACHINE COMPANY
55 MARSH BLDG.
BELLEVILLE, ILL., U.S.A.

USE THESE **MARSH** PRODUCTS

Government Stimulates Use Of Coal To Make Gasoline

Assuming hypothetically that one day not far off the nation's petroleum supply will be exhausted, or at least diminished to the point where it can no longer supply the demands for gasoline, as many oil experts predict, the Federal Government has started a long-range program to develop means and processes for producing gasoline from the country's almost unlimited coal reserves.

The cost of gasoline derived from coal by the most economical processes now known is still, from a competitive point of view, prohibitively high, ranging from 12 to 25 cents a gallon. Petroleum-derived gasoline costs about 5 cents a gallon.

But Congress thought the cost of coal-derived gasoline could be brought down, and has, by allotting \$5,000,000 for that purpose, put its belief into action. With this initial fund the Bureau of Mines has formed an office of synthetic liquid fuels. Dr. W. C. Schroeder is the acting chief.

Three demonstration plants are to be built. One will be devoted to the extraction of gasoline from shale, one will work on coal, lignite, farm and other products, and a third will use the same materials but under another process.

Shale, mined like coal, is charged into an oven after being well crushed. A ton of shale yields up to 50 gallons of crude shale gasoline.

The processes to be used by the second and third plants originated in Germany, but have undergone extensive development by experimenters in this country. The Bergium process, patented in Germany in 1914, develops gasoline-yielding oil from coal by mixing its oxygen and multiplying its hydrogen. Crushed coal is first mixed with oil to form a paste, then pumped with hydrogen gas into a converter. Subjected at high temperature to hydrogen gas pressures of from 4,000 to 8,000 pounds per square inch, the hydrogen supplants the oxygen and forms oil from the coal.

The German-born Fischer-Tropsch process to be used by the third plant burns coal or coke with a minimum of oxygen. Introduced to the presence of steam this produces carbon monoxide and hydrogen gases which are then purified and at precisely controlled temperatures, passed through a catalyst of cobalt and thorium oxide. From this comes carbon hydrogen compounds close in nature to oil and gasoline. Further refining is by methods already familiar to the petroleum industry.

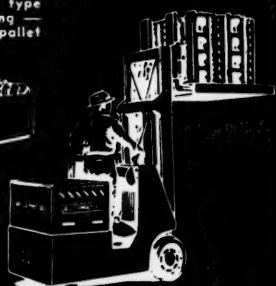
Many interests are watching the developments closely. The oil people, with tremendous blocks of funds invested in the machinery and organizations to handle petroleum products, see in coal-derived liquid fuels the basis for continued operations even though natural petroleum does become exhausted. The coal interests, facing increased competition from hydro-electric generation, gas and, at present, oil, welcome new uses for its merchandise.



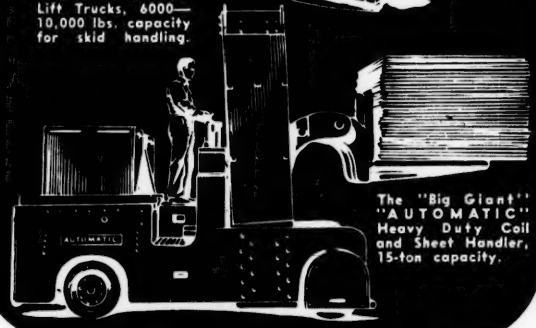
The little Giant "AUTOMATIC" TRANSPORTER — grasp the handle and walk away. Built-in Platform type for skid handling — Fork type for pallet handling.



"AUTOMATIC" Fork Lift Trucks, 2000—10,000 lbs. capacity for unit load handling.



"AUTOMATIC" Low Lift Trucks, 6000—10,000 lbs. capacity for skid handling.



The "Big Giant" "AUTOMATIC" Heavy Duty Coil and Sheet Handler, 15-ton capacity.

One man or woman with any "AUTOMATIC" Electric Propelled Power Lift Truck BIG or LITTLE can handle tons of Material Safely, Speedily Easily and Economically

From the "Little Giant" TRANSPORTER which requires NO TUGGING—NO PULLING—NO STRAINING—NO PUSHING—to the "Big Giant" "AUTOMATIC" with Power Steer and latest remote control devices, an "AUTOMATIC" Material Handling System will do a giant size job for you—to give you greater flexibility in intraplant transportation — whether for multi-tracking, storage, loading or shipping.

WRITE, PHONE or WIRE today

Find out now how you can apply the "AUTOMATIC" Material Handling System to your job.

"AUTOMATIC" representatives are listed in the classified telephone directories in principal cities and industrial areas under "Trucks Industrial."

AUTOMATIC TRANSPORTATION CO.

Div. of Yale and Towne Mfg. Co.

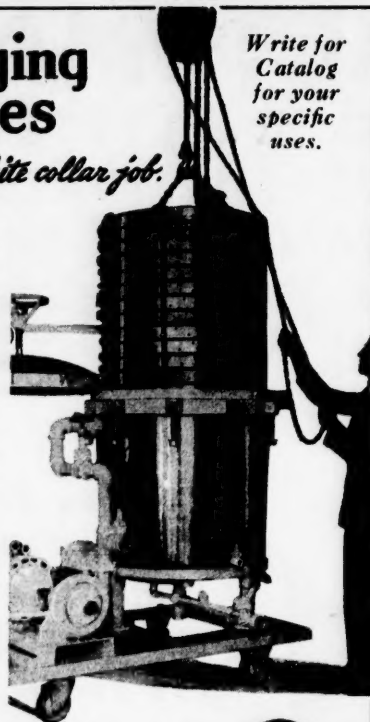
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Changing plates

Almost a white collar job.

Sparkler filter plates are interchangeable, which means the separate plates of one nest may be cleaned and prepared while another nest is being used in production. Eliminates the mess of cleaning half a dozen machines that are too small.

Sparkler Filters clarify or purify any fluid in any quantity, using any filter aid that produces the finest results at greatest speed.



Write for Catalog for your specific uses.

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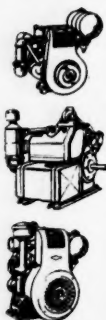
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PRECISION-GROUND CAMSHAFTS

another "HIDDEN VALUE" in all **WISCONSIN Air-Cooled ENGINES**



The "Camomatic" is another of those more-than-human machines that help to put heavy-duty serviceability and smooth-running efficiency into every Wisconsin Engine.

This machine automatically rough-grinds (and subsequently "smooth-finishes") each and every cam for every Wisconsin Air-Cooled Engine. The grinding wheel finishes cam contour with absolute precision and uniformity. Every camshaft for a given size engine, is exactly like all the other camshafts for all the other engines of that size.

This is another of those features you don't "see" . . . but it performs an important service for you on the job, on your equipment.

Most H.P. per pound **WISCONSIN MOTOR**
Corporation
MILWAUKEE 14, WISCONSIN U.S.A.
World's Largest Builders of Heavy-Duty Air-Cooled Engines

Revolutionary Changes Lie Ahead In Textiles

America's clothing may look about the same after the war, but it will not act it. Science has been busy improving the disposition of textiles.

Stockings won't run; suits, even when wet, won't wrinkle; pants, however squirmed in, won't shine; woollens won't shrink and will wear three times as long; nor need all this change the texture and feel of the cloth.

The experimental blending of textile fibers has produced wider varieties, better values and fabrics possessing specific desired qualities that make them suitable for specific purposes, after chemical treatment of fibers has removed the shrink, wrinkle, run and shine.

Many of the developments have important industrial applications.

Dr. Donald H. Powers, Monsanto Chemical Company's textile research chief, recently told the American Chemical Society that "in the case of cotton fibers, we have found it possible to add as much as 50 per cent to tensile strength by coating them with newly-developed Syton Solution which also prevents stockings from running. In the face of actual or prospective developments which might operate to retard the future growth and well-being of the cotton industry, this is a factor of great importance."

With Syton-treated yarns, he said, looms will operate with greater efficiency because breaks will be fewer. In the manufacture of cotton twine and cotton rope, fewer twists will be needed and stronger cords produced. This in turn will reduce operating and material costs, improving cotton's competitive position against foreign-produced hemp.

The new treatment of woollens involves the carrying out of a chemical process inside the hollow microscopic tubes of each fiber. Formaldehyde, age-old preservative, is combined with one of the melamine family to produce the compound which shrinkproofs fabrics and makes them crease-resistant. The fibers are filled with this resin-forming compound and a very thin film allowed to form on each fiber, thus affording fabrics still soft and flexible but with their feel and appearance unchanged, nor does it impair the ability of any fabric to take up dyes.

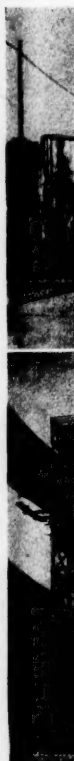
Untreated all-wool flannel may be expected to shrink 30.1 per cent and treated all-wool flannel only 4.1 per cent when laundered side by side. For all-wool suiting, the comparison is 11.5 per cent against 3.2 per cent; for all-wool shirting 20.7 per cent to 6.1 per cent.

Though the hollows within fibers are microscopic, scientists have no trouble getting a good look at what goes on there. In tests of resin impregnation, an electronic microscope was used, one with a magnification of 20,000 diameters, making blood corpuscles look like 2-foot sofa pillows.

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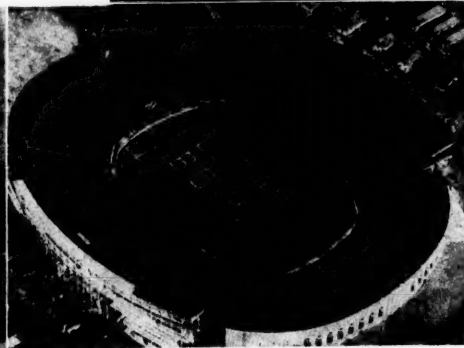
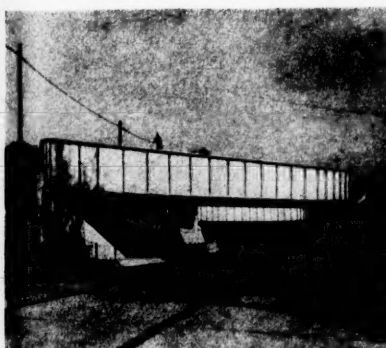
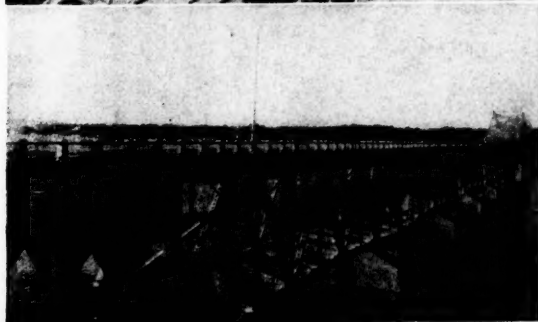
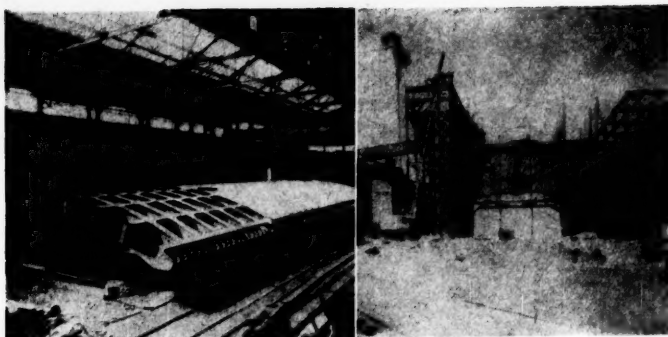
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Postwar Designing is the job of Today

and because steel supplies the most answers to construction demands, engineers, architects and building officials will rely on structural steel to meet the requirements for strength, elasticity, versatility, durability and ultimate economy.

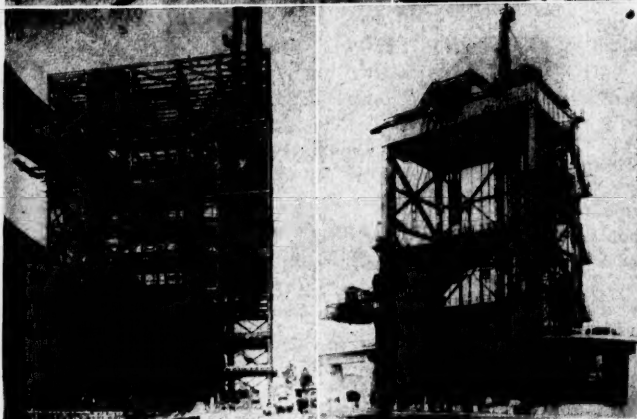
Steel is better than ever today because of wartime research, and Virginia Bridge engineering, fabricat-



ing and erecting resources are greater because of invaluable experience gained in supplying structural steel for the many and varied types of war

construction and special equipment. For bridges, industrial plants, commercial buildings, hangars, lock gates, stadiums—or whatever the type of construction, our structural steel know-how is at your service in the preparation of steel designs and estimates.

STEEL STRUCTURES ALL TYPES



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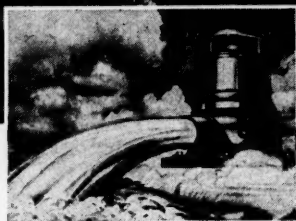
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UNITED STATES STEEL

NOVEMBER NINETEEN FORTY-FOUR

25



"Main Street" IS GOING TO SEE A LOT OF CHANGES

Every City Official, Engineer and Plant and Factory superintendent had better be ready and willing to go along in a lot of new changes for the active days of postwar. Your America is going to be a pretty alive and progressive country. Things are going to happen very rapidly.

There is one mighty big and important fact that all should remember: . . . all progress, growth and development will absolutely depend upon an adequate and thoroughly dependable supply of water.

As after World War I, Layne is now swinging over to industrial and municipal Well Water System installation work. The requirements for peace time need are now being given special attention. The building of Layne high efficiency pumps is continuing without let up. Field testing and drill crews are up to full strength. Ready now are all kinds of parts, supplies and new equipment for the enlarging or the reconditioning of old wells. All branches of Layne service are ready to serve on important Water Supply work.

If your needs are for more water, or if your present system needs service, better get in touch with Layne without delay. For late literature, catalogs, etc., address Layne & Bowler, Inc., General Offices, Memphis 8, Tennessee.

AFFILIATED COMPANIES: Layne-Arkansas Co., Stuttgart, Ark. * Layne-Atlantic Co., Norfolk, Va. * Layne-Central Co., Memphis, Tenn. * Layne-Northern Co., Mishawaka, Ind. * Layne-Louisiana Co., Lake Charles, La. * Louisiana Well Co., Monroe, La. * Layne-New York Co., New York City * Layne-Northwest Co., Milwaukee, Wis. * Layne-Ohio Co., Columbus, Ohio * Layne-Texas Co., Houston, Texas * Layne-Western Co., Kansas City, Mo. * Layne-Western Co. of Minnesota, Minneapolis, Minn. * International Water Supply Ltd., London, Ontario, Canada.



WELL WATER SYSTEMS DEEP WELL PUMPS

**BUILDERS OF WELL WATER SYSTEMS FOR
EVERY INDUSTRIAL AND MUNICIPAL NEED**

Only Milk And Water Lead Paper in Per Capita Use

The per capita consumption of paper in the United States is greater than that of any other commodity, with the exceptions of water and milk, according to Dr. Martin Williams of the University of Alabama.

In 1941, when the per capita consumption of paper was 300 pounds, the consumption by classes was as follows: paperboard, 123 pounds; newsprint, 59; wrapping paper, 40; book paper, 30; fine paper, 11; tissue paper, 14; and all other kinds, 22.

"This annual consumption is expected to increase for several years with the largest expected increase in boards, wrapping, and bag paper, for which a large part of the present kraft production is now used," said Dr. Williams.

"The use of kraft pulp in the manufacture of all other types of paper is also expected to increase and it is possible that the total annual kraft pulp capacity in the United States will reach 7,000,000 tons by 1950, a 33 percent increase over 1943.

"Thus, the economic aspects of the kraft paper industry should occupy an increasingly important part in our total national economic scene. This should be especially true in the South where the great expansion of the kraft industry has been regarded as the most outstanding economic development of the recent business depression."

In recent years, the kraft (or sulphate) process has become the most important pulp-producing method, Dr. Williams pointed out. About 45 percent of all wood pulp made in the United States is now produced by the kraft process.

The United States Tariff Commission divides the United States into four pulp and paper producing regions: Northeastern, Lake and Central, Southern, and Pacific Coast. The kraft branch of American paper making is essentially a southern industry, as about 83 percent of all kraft production is in the South, and over 90 percent of the South's pulp production is kraft pulp.

"The kraft industry had undergone a tremendous expansion since 1935," Dr. Williams continues. "Practically all of this has been in the thirteen states of the South. Pulp and paper mills are found in all except Kentucky and Oklahoma.

"On January 1, 1940, there were 47 pulp and paper mills operating or under construction in the South. These mills represent an investment of \$200,000,000, over \$100,000,000 of which has been added since 1935. These mills use over 4,000,000 cords of wood annually, and provide employment for 40,000 men, about twice the number of employees in the pulp and paper industry in the South in 1935.

"With kraft mills in the South running at capacity, the value of the finished products made each year will exceed \$180,000,000."

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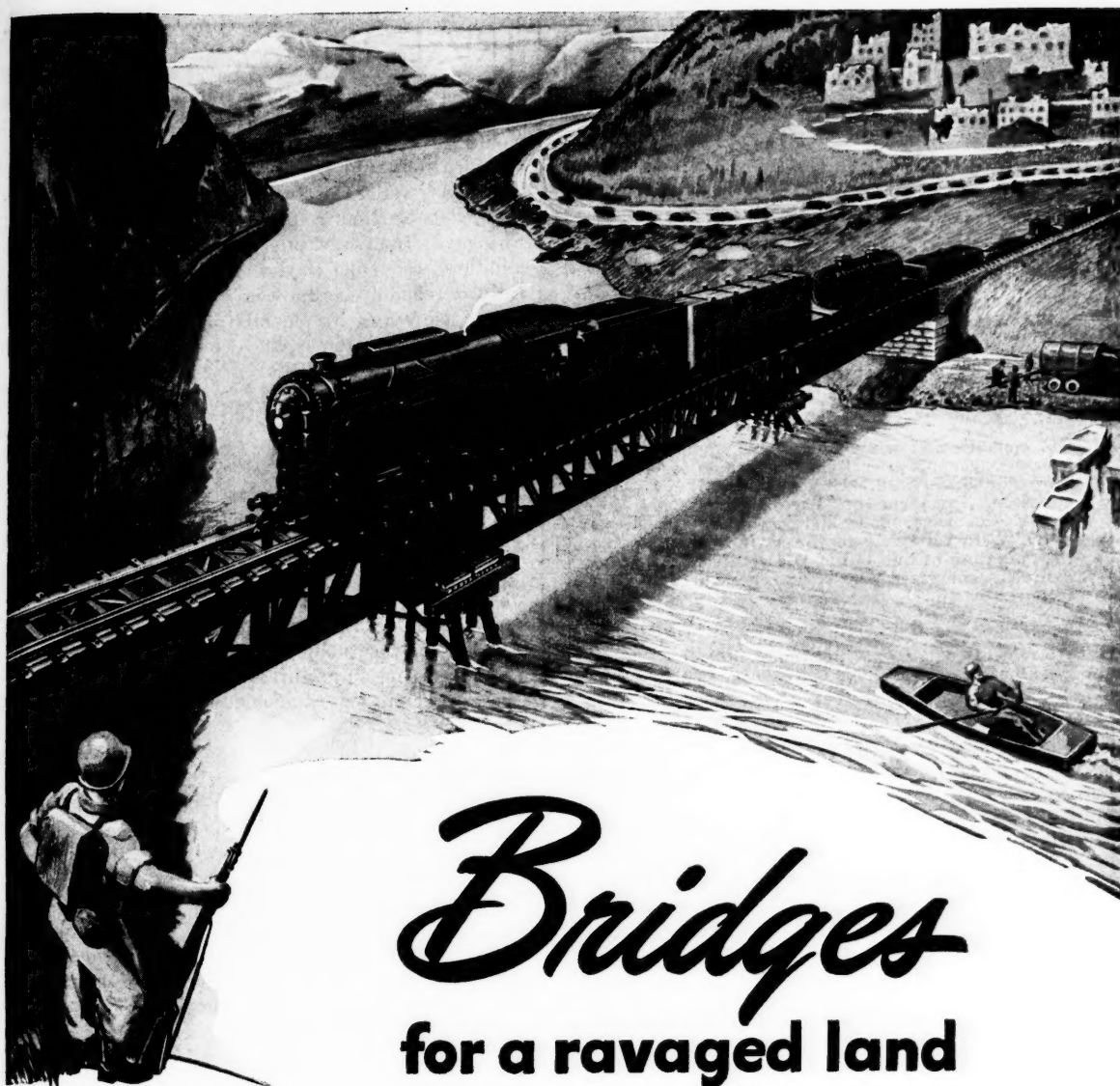
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Bridges

for a ravaged land

In the wake of the retreating Nazi horde, wrecked European railways are being restored to service as rapidly as possible. The British, who are handling this job in western Europe, designed steel spans, made up of interchangeable parts held together by pins and bolts, to serve as emergency bridges. A single span may extend to 85 feet; longer bridges may of course be constructed using intermediate piers.

The Unit Construction Railway Bridge, as the span is called, was first used in North Africa, where it won the approval of U. S. Army engineers. Now Bethlehem's Fabricated Steel Construction organiza-

tion is shouldering the major part of the task of mass-producing these knock-down bridges—nearly 1,000 spans, and 250 sets of spare parts, totalling 50,000 tons.

To make the bridges quick and easy to assemble, yet thoroughly dependable in service, the parts must fit together with much greater accuracy than is needed in ordinary riveted-bridge construction.

The holes which receive the pins or bolts must be accurately centered, to within 1/1000 of an inch; of accurate diameter to within 8/1000 of an inch; and the pins and bolts themselves must be machined with a leeway of no more than 5/1000 of an inch.

Granted that these are "temporary" structures. Yet their substantial nature, and the state of things in ravaged Europe, suggest that the bridges may be giving useful service for a long while to come.

WORLD'S LARGEST SHIPBUILDER



SECOND LARGEST STEEL PRODUCER

NOVEMBER NINETEEN FORTY-FOUR

27



DAVENPORT SAVES \$25.00 PER DAY

Examine the following figures and you'll realize what a Davenport Diesel-Electric can do for YOU in major SAVINGS. Here's what Mr. V. O. Johnston, President of The Lincoln Sand & Gravel Co., says about his Davenport Locomotive: "With reference to the savings effected in the operation of our 44-ton Diesel-Electric Locomotive as compared with steam, the figures are as follows:

STEAM

5 tons of coal @ \$4.50 per ton....	\$22.50
Fireman	5.20
	\$27.70

DIESEL

25 Gallons of Oil @ 8c a Gallon..	2.00
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Net Savings	\$25.70
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Better-Built
DAVENPORTS
are AVAILABLE in

**STEAM
GASOLINE
DIESEL
with
ELECTRIC
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Complete Information on Request



EXPORT OFFICE
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"BROSITES"

DAVENPORT LOCOMOTIVE WORKS
A DIVISION OF DAVENPORT BESTER CORPORATION DAVENPORT, IOWA

TRIAL TRIP

Official tests held October fourth showed the East Coast's first Victory ship, the Frederick Victory, would fulfill the Maritime Commission's wartime specifications and possibly meet peacetime requirements as well. The 10,700-ton vessel built at the southeast Baltimore plant of Bethlehem-Fairfield Shipyard, Inc., was put through her paces in the middle Chesapeake Bay, with every movement carefully watched by both a trial board from the Federal ship agency and by officials of the yard, including President A. B. Homer, and Vice President and General Manager J. M. Willis.

Under command of Capt. T. E. Ness, veteran of many such trial trips, the new ship plowed back and forth along a mile measured for the purpose on the shores of Maryland's Kent Island. Her 455-foot hull was zigzagged, steered in circles ahead and astern, and abruptly stopped and started, as the 6500-horsepower turbine turned the propeller around a hundred times a minute to churn the waters of the Chesapeake in foamy geometrical designs of many patterns.



East coast's first Victory vessel, Frederick Victory.

As the ship bore down on the straightaway of the measured mile, an officer peering through glasses from his station on the bridge called "mark" when the vessel passed abreast of the buoys marking the stretch. Stop-watches started and other officers noted tachometer readings and depth recording instruments. The observer repeated his cry of "mark" as the buoys at the far end of the mile were passed. Results of the run showed the ship's speed at both full and normal operation to average better than the rated figure of about sixteen knots.

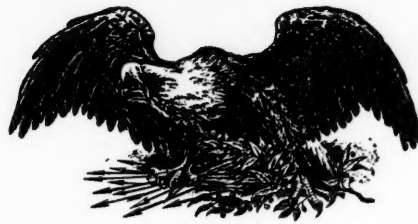
The steering gear, which figures so importantly in the present shipping picture because of the possibility of torpedo attack, was one of the interesting features of the test. Mettle of the main steering gear is tried on what is known as "hardover to hardover." This means that the course of the vessel is zig-zagged to demonstrate its efficiency to move over a course of sharp angles that resemble a frothy outline of a huge saw on the surface of the water. Figure-of-eights, circles and U-turns were also included.



Bethlehem-Fairfield president A. B. Homer and Vice-President J. M. Willis, (right) with Capt. T. E. Ness.

Both anchors were dropped during the tests. Fathom after fathom of huge chain was unreeling during the demonstration. The big winches strained and groaned as the big hooks were heaved in, hose playing a stream on the links all the while to wash away the Chesapeake Bay mud. Minutes passed until the anchors broke the water's surface, slowly

(Continued on page 82)



"What Enriches the South Enriches the Nation"

American Citizen or World Subject

Until January 20th, 1945, the conduct of the affairs of the American people, both foreign and domestic, are in the hands of Franklin Delano Roosevelt.

It is possible, though our faith in the intelligence of the American electorate tends to make it inconceivable, that this one among all of us may retain the power of the presidential office which he aggrandized for personal ends by means and methods not always open—it is possible—that he may hold in his hands the future welfare of us all until 1949 or until "death do us part," and commit us to a policy that will live after him.

It should be apparent to everyone that with the accretion of power that almost twelve continuous years in office have made inevitable Mr. Roosevelt's ego has reached the point where it refuses to be satisfied by national ambitions and now seeks a global stage on which to perform.

The sober, self-reliant American citizen who loves his country and respects himself can not fail to recognize the messianic complex portrayed by the world's greatest actor, so skillfully hidden at times, so successfully exploited at others depending on the show in which he is to play his part. The jester's cap and baubles, "and make no mistake about it," are discarded at will or whim to be replaced by the halo of sanctimoniousness and the scepter of august authority. He can run the gamut of acting from Groucho Marx to the late John Barrymore without any apparent personal realization of the incongruity of his performance. The King can do no wrong.

It is this irresponsible combination of comedian and tragedian, who asks us, the American people to surrender the right that we now exercise through our representatives in Congress to make war—the very

essence and breath of national sovereignty. He not only has the effrontery to ask us to surrender it to him but to a group of foreign nations, one of whom is Russia. This group might include Germany and Japan at some future date. It might conceivably include Liberia.

If the people of our great nation, universally recognized as the greatest on earth, sell their birthright for a mess of pottage and place the welfare and security of their children and grandchildren in the hands of foreign dictators, diplomats and dipsomaniacs because they have fallen under the spell of a radio voice that knows how and when to wheedle, cajole or lecture and can turn either part on or off with the flick of a cigarette holder, then America and Americans deserve to be ruled by a man and not governed for themselves.

We are living in an age where not even seconds separate one part of the world from another when opinions have to be exchanged so that minds may meet. Given a righteous cause Americans have always been quick to act. But the righteousness of that cause must and should be decided by Americans in the American way.

This proposed surrender of national sovereignty is not a question to be lightly dismissed as just another experiment. It can not be merely paid for in dollars as future generations will pay for leaf raking, pig killing and power dams filled with silt. It is a question that you Mr. American Citizen must face and decide. Are you a citizen of the United States or are you a subject of the world? It might be nice to be the leader of a world federation, but would it be nice to be a world subject?

If this be isolationism, make the most of it.

LEST WE FORGET

Ten Original Amendments to

The Constitution of the United States

Article I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

Article II

A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

Article III

No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

Article IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Article V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any Criminal Case to be a witness against himself, nor be deprived of life,

liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

Article VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining Witnesses in his favor, and to have the Assistance of Counsel for his defence.

Article VII

In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.

Article VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Article IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

Article X

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

The Rights provided in the first ten amendments to the Constitution and guaranteed by them to the several states and to the American people have never been abrogated or changed by the American people in a legal, constitutional manner. They still exist.

We leave the decision to those who now reread them in the light of present day events as to how devastating has been the destruction of these Rights by Presidential ukase, legislative subterfuge and judicial chicanery.

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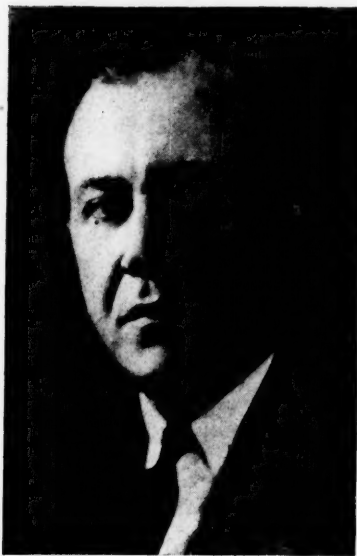
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Industrial Utilization of Southern Farm Crops

THE large-scale use of farm crops in industry has been the dream of aggressive agricultural workers for a good many years. Some people call this the chemurgic idea, while others speak of it as merely expanding the markets for agricultural commodities.

Interest in this field is always intensified during periods of burdensome surpluses such as we had in the early thirties and in time of war when there is a great need for substitutes and replacements. Interest has gradually increased over a period of years until formal and organized action is now being taken to increase the industrial utilization of agricultural commodities. There are now in existence in various parts of the South a number of laboratories engaged in research in this comparatively new work. Some of these are operated by colleges and universities, some by State governments, some by private organizations, and some by the Federal Government.

Four of the largest of these laboratories in the country are a part of the Bureau of Agricultural and Industrial Chemistry of the United States Department of Agriculture. These laboratories were authorized by Congress in 1938 and given the specific job of finding new and wider industrial outlets and markets for farm products. They are located in the four major farm-producing areas of the country, namely, New Orleans, for the South, Peoria, Illinois, for the North,



by

O. E. May

*Chief, Bureau of Agricultural and Industrial Chemistry
United States Department
of Agriculture*

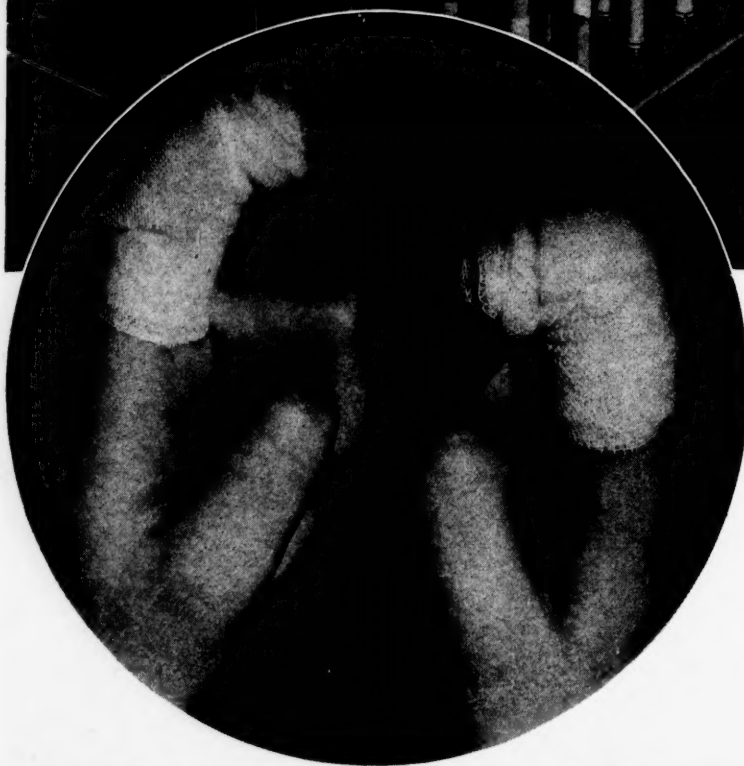
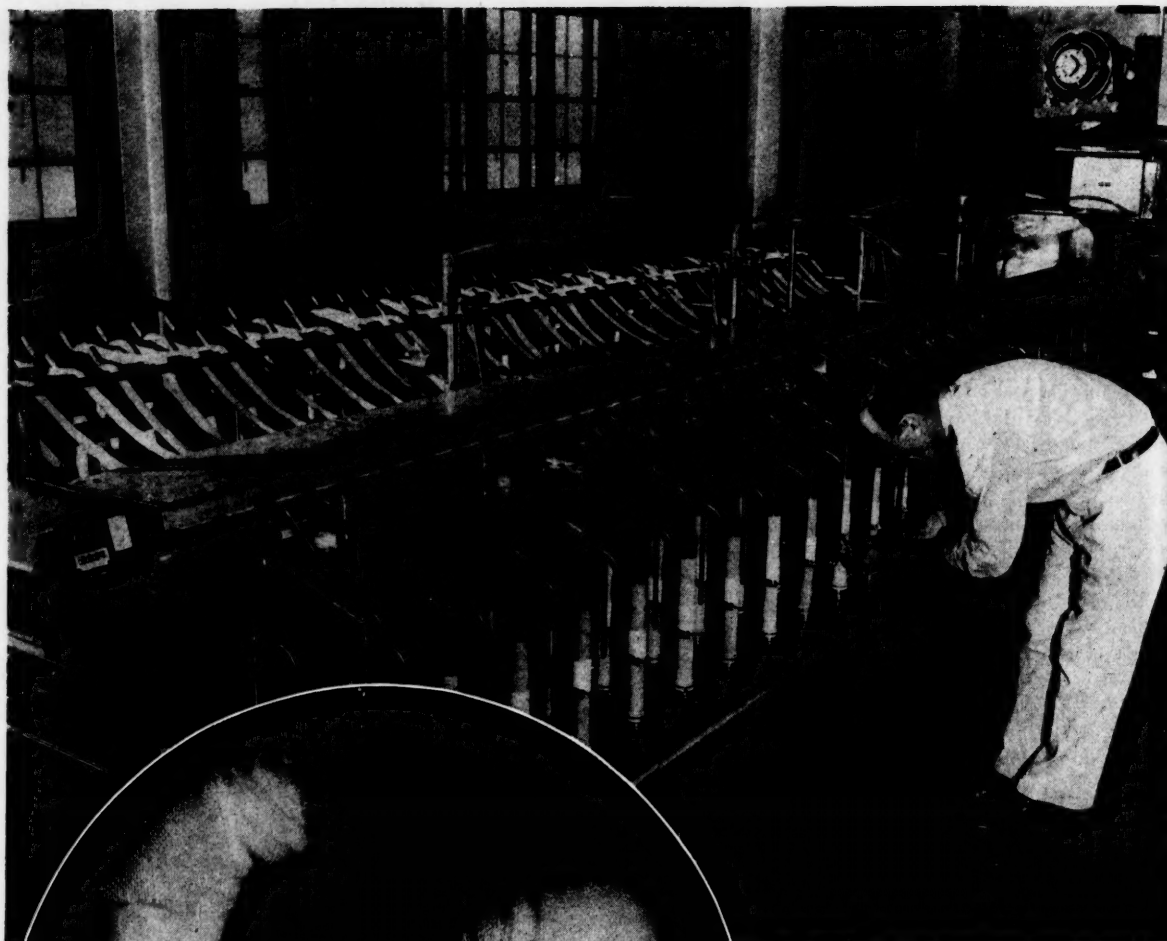
Philadelphia, Pennsylvania, for the East, and Albany, California, for the West. Approximately eleven hundred persons, more than half of whom are highly trained chemists, physicists, engineers, and other scientists, are now at work on more than 160 projects dealing with the use of agricultural products in the war effort. These include work on penicillin, rubber, industrial alcohol, smokeless powder, plastics, in-

dustrial proteins, essential drying oils, automobile tire cord, synthetic fibers, rotproofing of sandbag material, preservation of vegetables by salting, freezing and dehydration, conservation of leather, substitutes for cork, and for palm and other imported industrial oils, and many other important projects. A brief discussion of some of the accomplishments in these laboratories will illustrate how research is utilizing agricultural commodities as substitutes and replacements for critical war materials.

The greatest single contribution these laboratories have made to the war effort is the part one of them played in the development of the commercial production of the remarkable new drug penicillin, which is produced by a mold. Scientists in this laboratory increased the yield of penicillin from a laboratory curiosity to the point where it was feasible for industry to start production on a commercial scale. They actually increased the yield more than 100 times by selecting better strains of molds and by feeding the mold on a new diet composed of corn steeping liquor and milk sugar—two agricultural products that are produced in large amounts in various parts of the country. This new diet has more than doubled the outlet for milk sugar. As a result of the application of these accomplishments to commercial production, penicillin has been made available to our armed forces much sooner and in greater quantities

Department of Agriculture's Southern Research Laboratory, New Orleans, La.





Above—Scene in the experimental textile mill installed in the Southern Regional Research Laboratory, New Orleans, La., where work is being done on improving the cotton cord used in automobile tires.

Circle—Elasticity of cotton bandage as improved by new type developed at the New Orleans laboratory and shown on the right hand.

than would otherwise have been possible. The 21 plants now producing penicillin on a commercial scale in this country and Canada will be turning out enough to treat 250,000 serious cases of infection a month by the end of this year, and the benefits from this one piece of agricultural research will continue

to increase and to help humanity long after the war is over.

The rationing of shoes has brought home to all of us the need not only for the conservation of leather, but for the development of domestic supplies of tanning materials needed to help meet the increased demand for leather goods

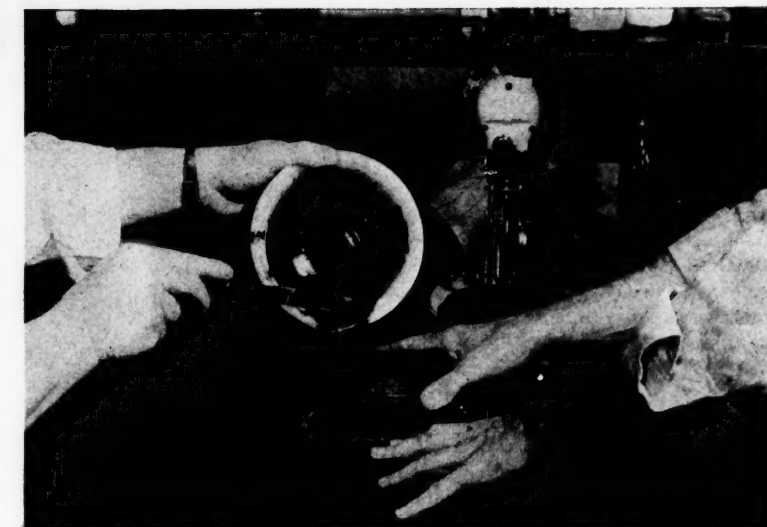
for war purposes. Tannins from barks, woods, leaves, roots, and fruits are essential for making vegetable-tanned leathers. Normally this country imports about two-thirds of its vegetable tanning materials. War curtailed these imports to such an extent that reduced supplies slowed down the production of heavy leather which is needed by the armed forces. To safeguard ourselves against future troubles in this field it is highly important that the availability and relative value of new and undeveloped domestic tannins be determined as soon as possible. This is being done. Agricultural scientists are now investigating the feasibility of utilizing the tannins from American sumac,

Right—Molding prepared peanut shells used in making experimental bottle closures at one of the regional laboratories.

canaigre root, scrub oak bark, western hemlock bark, and other domestically grown plants. Many of the plants that are rich in tannin material grow abundantly in the Southern States. Tannin material extracted from the bark of the southern scrub oak produced very satisfactory leather in experimental tests. Tannin extracts from the canaigre root, which grows wild in the Southwest and which may be cultivated in other parts of the South, also produced satisfactory results after some of the troublesome constituents were removed. The most promising of these investigations are being continued in the hope of developing something that will meet this rather critical situation.

Noreseal, a cork substitute, is another wartime product that was developed from agricultural material. The substitute is made of pith and fibers from farm wastes, together with animal or vegetable

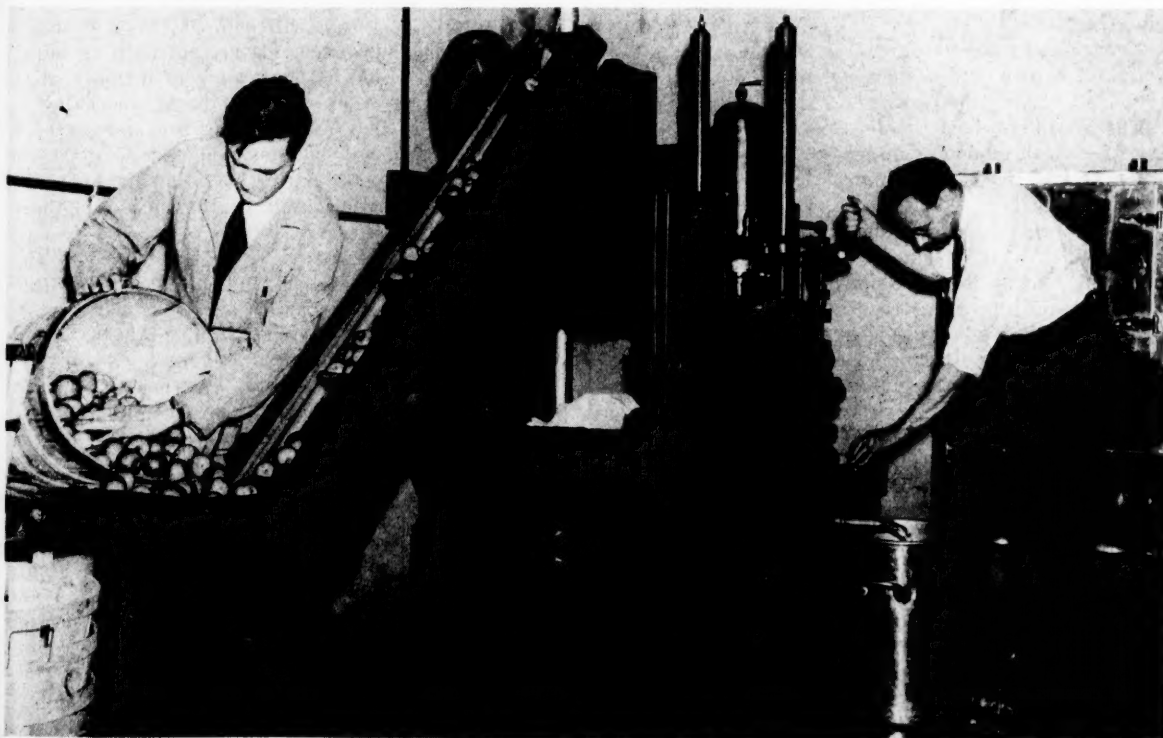
Below—Apple processing room at a Department of Agriculture laboratory, demonstrating the first step in production of either apple syrup or new apple juice concentrate.



glues and sugars, apple sirup or glycerine. Pith particles alone, which have often been suggested for this purpose, are not suitable because the air cells are much larger than those in cork, and because the membranes are much thinner. But by cutting pith into fine particles and incorporating these in a liquid composition that would set and harden to an elastic body, the research workers were able to make a product that closely duplicates the physical structure of cork. Noreseal

can be made from the pith of such Southern farm waste as peanut hulls, sugar-cane bagasse, corn-stalks, and similar pithy material. It can be made in rod or sheet form, or poured directly into the cap of the bottle and is particularly satisfactory as a seal for bottled beverages. It can be stamped or sliced into discs of suitable size. Noreseal is now in pilot-plant production, and bids fair to remain as a successful enterprise after the war.

(Continued on page 70)



LOOK AHEAD — LOOK SOUTH!

FOR several years now the Southern Railway has been saying, "Look Ahead—Look South!" We are saying this regularly and continuously in the pages of some of the great national business magazines. We are saying it in hundreds of newspapers; in many farm and banking and financial publications. We are repeating it in speeches and letters and innumerable conversations.

We have shouted "Look Ahead—Look South!" from the housetops. We have whispered it in quiet places. We have used it, and will continue to use it, as our theme song, over and over again.

But just for a few minutes I want to reverse this theme song. I want to say, not "Look Ahead—Look South!" but instead "Look South—Look Back!" And I have a purpose in doing so; a purpose that it is not entirely out of tune with our fervent prayers for Peace and a better tomorrow.

Many centuries ago a bit of ageless advice was written by the great Chinese philosopher, Confucius. He said:

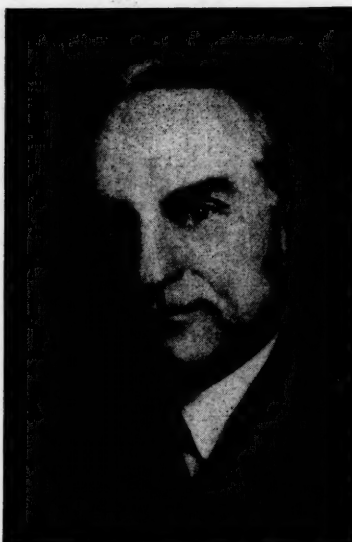
"Study the past if you would divine the future."

Everyone, in these tragic days of war and sorrow and dislocation is trying to "divine the future."

The South survived the devastating aftermath of defeat in a bitter war. It has lived through drastic upheavals in its social structure. It has seen successive evolutions in its economic life. It has suffered the blighting effects of depression and tasted the exhilarating results of boom periods. Yet with all its ups and downs, the South has doggedly fought its way toward a sound economy; an economy balanced wisely between agriculture, raw material production, processing and manufacturing.

Indeed, it seems to be the fashion these days "to look at the record"—judging from what I have been hearing from my radio. So let's look at the record of our beloved Southland.

In 1880, the ten Southern states of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North



by
Ernest E. Norris
*President,
Southern Railway System*

and South Carolina, Tennessee and Virginia turned out a little more than a quarter of a billion dollars worth of manufactured products.

In 1939 (the last year before war distorted all comparisons) these same ten states turned out more than six and a quarter billion dollars worth of manufactured products.

As long ago as 1920, the ten states I have mentioned were producing as much manufactured goods as the whole nation produced just 40 years before. But that was only the beginning; the real industrial development of the South came during the two pre-war decades — since 1920. For instance:

Between 1920 and 1939 the value of manufactured goods produced in the ten Southern states increased 20 percent, while the value of the nation's industrial production declined 9 percent.

During the same period the number of people employed in Southern industries increased 19 percent, while the total number for the country as a whole decreased 13 percent.

For any period the statistically minded may select; by any yard-

stick that may be applied, the South has forged steadily ahead industrially. What's more, it has grown faster than any other section of the country.

Thus it is more than coincidence that a responsible officer of the United States Bureau of the Census recently found, after a study of population and production trends since 1920, that 40 of the nation's 68 industrial cities having the brightest prospects for the future are in the South. And he adds significantly that this is not surprising in light of the fact that the South has in recent years been experiencing continued industrialization, while the more mature North has remained relatively stable.

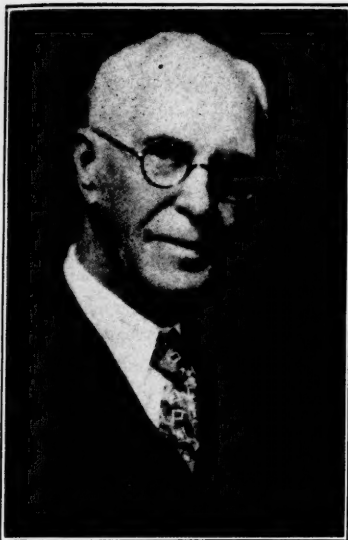
Nor is it wishful thinking that prompts the Southern Railway to broadcast the stirring appeal to "Look Ahead—Look South!" We do so because we know that, in the South, industrial pioneering has never ended—and that it never will end. We do so because we have—FAITH!

In this connection, I wonder if many people realize that a railroad represents the ultimate in faith. For a railroad, of itself, is not a producer. It creates nothing tangible. It has work to do only after others have produced something to be transported. The success of a railroad depends, not so much on what it can do for itself, but overwhelmingly on the success of those it serves.

Thus, through the gateway marked FAITH, I come to a situation that, to me, is utterly fantastic — almost unbelievable — and greatly to be feared.

I have given you, briefly, some of the highlights of the industrial development of the South during the past 60 years, and particularly during the two decades preceding World War II. The record proves beyond all question that the South has already experienced an amazing industrial growth, and I am positive that every thinking person in the South earnestly wants to see this section continue to grow industrially.

(Continued on page 80)



HERBERT EUGENE WESTERVELT
November 20, 1898—October 3, 1938

and the SOUTH BECKONED

others liked to do business with him; all admired his integrity, his ability and sociable humanness, his initiative and the way he dramatized, though with quiet restraint, American free enterprise.

HERBERT Eugene Westervelt was far more than just a highly successful maker of bags and paper products.

True, he probably knew as much as any man of his time about how to make bags, how to sell them, and how to build machines—many of which he patented, to make better bags. The widespread, progressive enterprise he developed, the Gulf States Paper Corporation of Tuscaloosa, Alabama, attests his industrial acumen. But his commercial success and the warm esteem in which he is memorialized by his associates were fathered by something he did not know.

It was what he *was*. He was an American to the core, a real-life sterling character such as Harold Bell Wright portrayed. Though he died in 1938, the continuing reverence in which he is held is as living and glowing an epitaph as those spelled out in wreaths of smoke from the busy smokestacks he built.

Men liked to work with him,

first expansion was the establishment of a small paper jobbing business with a cash capital of \$260. With initiative and a good name, that was ample as a start. For two years, in a room 20 by 30 feet, he handled the selling, shipping, collecting and all other details of this activity. By 1889 he had bought the Springfield Paper Company.

In 1894 he and three others incorporated the Prairie State Paper Company at Taylorville, Illinois. It was built largely with machinery and material which Mr. Westervelt bought in 1893 from the Chicago World's Fair buildings as they were being wrecked.

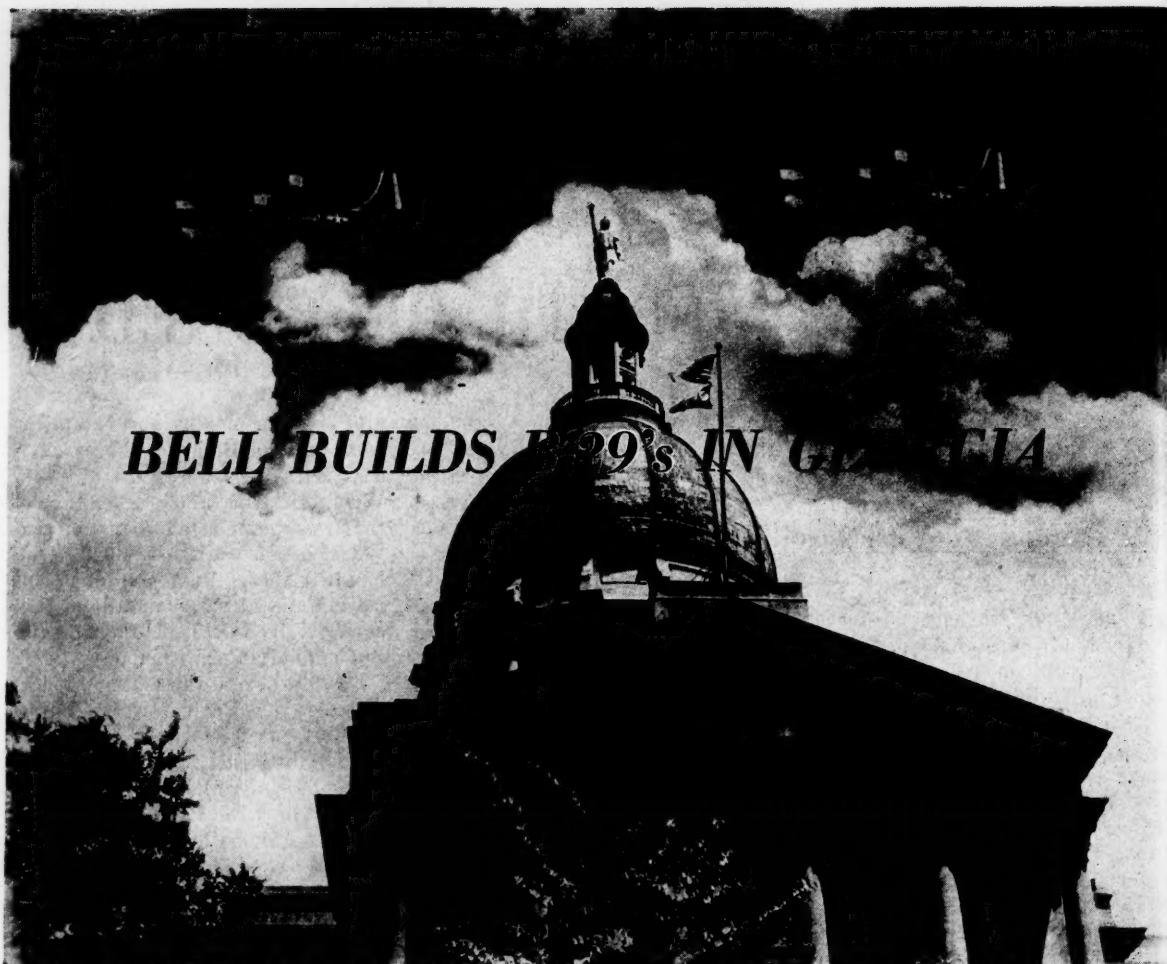
In 1907, after considerable successful experimentation with machines for making E-Z Opener Bags, the name of the firm was changed to the E-Z Opener Bag Company. Subsequent years saw the establishment of other factories at Mexico City, Fulton, N. Y.; Braithwaite, Ia., and Decatur, Illinois.

But the South, which he had studied intently, lured him. Its industrial conveniences, for his type of business especially, were unmatched elsewhere. In one relatively small area could be found what was needed for the expeditious manufacture of his products.

(Continued on page 82)

The main plant of the Gulf States Paper Corporation, Tuscaloosa, Alabama.





BELL BUILDS B-29's IN GEORGIA

LESS than three years after Pearl Harbor, far-flying B-29 super forts built in Bell Aircraft's huge Georgia Division plant near Marietta, Ga., are carrying out regular missions of revenge over Japan's industrial centers to pay back with mounting interest the not-so-celestial sons-of-heaven for their treachery.

Fifteen days after the Pearl Harbor attack, President Larry Bell of the Bell Aircraft Corporation was advised by General H. H. Arnold, chief of the Army Air Forces, that his company had been selected to build B-29 bombers in a new plant in the vicinity of Atlanta on a reservation covering 2830 acres.

Ground was broken on March 30, 1942 for the great industry. A year later more than 1000 employes moved into the office buildings and the main plant which has 76 acres of floor space including the basement. Now more than 25,000 peo-

by
H. Parker Lowell

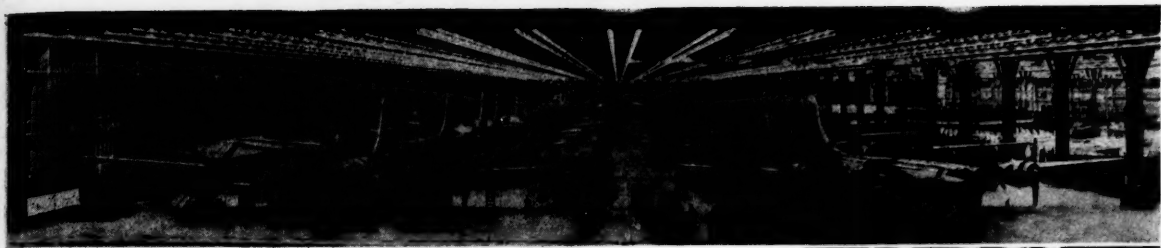
ple are employed. They are men and women from farms and school-rooms, from small shops and garages, from offices and from homes. Of this group 82 percent are Georgians. Another 11 percent come from bordering states.

Few had previous experience in industry. Skilled industrial workers already had been lured from Atlanta territory to other defense industries and ship yards. Men and women willing to turn from their peacetime occupations entered the intensive training courses set up in aircraft vocational schools with the help of the Georgia State Department of Vocational Education. After being hired, these men and women continue to learn about modern shop practices and essential

safety methods in classes conducted in the Bell Bomber plant by the Georgia Division's training department.

This training combined with the native intelligence and adaptability of these men and women resulted in an industrial miracle when five days before Christmas of 1943, Bell Aircraft's first all-Georgia B-29 superfortress rolled off the assembly line. It was a tribute to the earnest efforts of these typically American workers. Rosy-cheeked high school graduates worked at assembly benches beside silver-haired grandparents. All were eager to perfect themselves in this new business of turning out powerful bombing planes for Uncle Sam's air armada.

Their expertness at handling unfamiliar tools and operating heavy machinery has won praise from their supervisors, who believe that industry in the South will witness a healthy expansion as a result of



this concentrated war effort. Not all of these thousands of war workers came to Bell Aircraft without experience in industry. In the wood shop are men who were veteran cabinet makers. In the plaster pattern department, artists and sculptors now toil at the prosaic but exacting task of designing streamlined airplane parts. Seamstresses, who once sewed shirts, now operate machines which neatly close the thick edges of insulated blankets to line Bell-built high-flying B-29 bombers.

Many have become proficient at

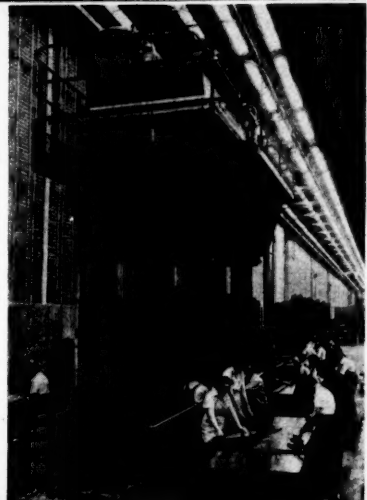
entirely strange operations. Women in the electrical crib assemble complicated wire harnesses and circuits for the nerve system of the big bombers. Others install yard after yard of tubing and control cables in the long body and broad wings of the plane as it takes shape on the

(Continued on page 68)

Above—Night view of the assembly line at the Bell B-29 plant, Marietta, Ga.

Right—Small parts for the bombers are stamped on mammoth hydraulic presses.

Below—Twenty giant Bell-built B-29's moved toward the final assembly line.





The nation's furniture buyers know it well. The Southern Furniture Exposition Building at High Point, North Carolina.

by Harold C. Bennett

SOUTHERN FURNITURE LEADS THE NATION

THIRTY years ago those in the business of manufacturing furniture in the South faced their future with all the trepidation of a new industry struggling against firmly established centers of prestige, wealth, age and certain economic advantages which then appeared to be insurmountable. What reputation the southern furniture industry had as a whole at that time was bad—bad from the standpoint of design, quality, craftsmanship, methods, machinery and location.

The story of how this picture changed is one of the industrial sagas of the South. In the last twenty years the southern furniture industry has achieved a place of prominence, importance, and definite economic consequence in the national scene. Today this industry faces its future with all the confidence, prestige, and background of a position of leadership.

As is to be expected, it didn't just happen. It had a beginning, a development and, with the advent of war, a temporary ending.

The beginning can be attributed to several things. One—the Southern Furniture Manufacturers Association; another—the Southern Furniture Exposition Building. Both were nervy, upstart organizations in the beginning. Both are now powerful national influences in furniture manufacturing and selling. The one taught improved furniture production, lower costs, and better management. The other stimulated design and selling while

publicizing the new southern industry to the entire nation.

Another early influence in southern furniture manufacturing was World War I, and its aftermath. Up to that time furniture making in the South had just grown. Convenience of hardwood lumber was the main reason, and the resulting product found a ready local market in the South. However, when cotton dropped to five cents a pound after the war, southern furniture manufacturers were forced to seek their markets elsewhere.

To sell their furniture in the North they were forced to learn more about both design and construction. It is typical of the generation of southern furniture manufacturers of this period that when they embarked on a new method or development they went all the way. The result was that soon many of the best furniture designers in the nation were coming South on periodical trips. Some were permanently hired. Others established headquarters in the South. An era of styling swept the industry and the North began to buy southern-made furniture.

The Southern Furniture Exposition Building was built in the early 20's, at a cost of more than a million dollars. Nearly all the important southern factories exhibited their lines therein, and many northern specialty lines were shown as well, because the South as a market was by then coming back strong.

During these years the southern furniture industry not only grew, it developed. By 1930, out of the many small furniture plants scattered through areas of Western North Carolina, Southwestern Virginia and Eastern Tennessee, there had emerged some very large furniture producers, centered around High Point, N. C., Martinsville, Va., and

Lenoir, N. C.

Development of southern furniture manufacturing continued right on through the depression period. This is significant because it was not typical of the already developed industry elsewhere. This was a period of the toughest competition in the industry. It was also a period when many southern manufacturers stepped-out and pioneered the way to mass production of furniture by modern manufacturing methods. The first furniture conveyor system was installed in a southern plant. The first hotplate veneer press for a furniture factory was installed in the South. Many plants embarked on a ten-year amortization plan for all their machinery and equipment. Some companies could boast of not having a piece of equipment over five years old. The result of this general development was better furniture at lower prices.

It was natural for the South to cater to the popular-priced markets at this stage of their growth, but gradually the trend showed more styling, more design and more craftsmanship being included in the popular-priced grades. Some factories have gone on into the high-styled, medium-fine grade merchandise and have been eminently successful. Some have specialized and others make complete lines — bedroom, dining room and living room — in the popular-priced grades.

During these years the Southern Furniture Exposition Building at High Point became widely known and recognized throughout the industry. Dealers from every state in the Union came to attend the semi-annual markets. In 1937 it was enlarged by adding four more stories to the original ten. More exhibitors, larger exhibits, and the growing market for furniture in the South

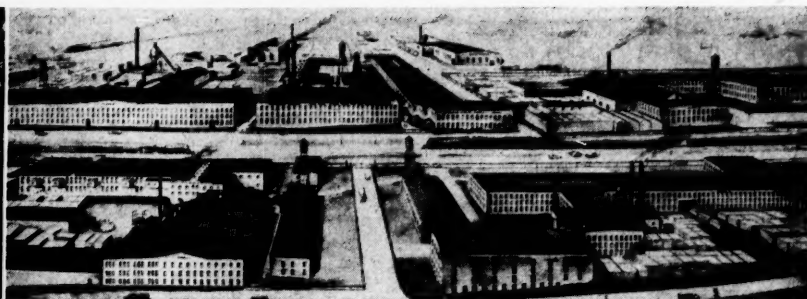
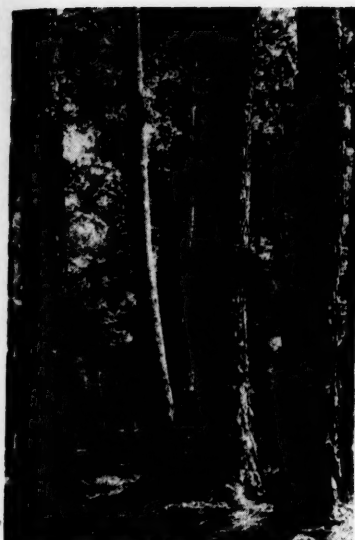
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From forest to great factory to master workmen to quality furniture, it's all done in the South. The above sketch shows one of the world's largest furniture factories, 93 acres of ground, 31 acres under roof, too big for one picture. Left, loblolly pine of South Carolina.



have kept it at capacity rental ever since. Today a further major enlargement is contemplated.

In the beginning the South had two signal advantages in furniture manufacturing, which it still has today. Seven-eighths of the total production of hardwood in the United States is in the South. The climatic advantages of the Appalachian plateau where most of the furniture industry is located cannot be denied. Buying centers of population have become shorter in time and a market for furniture has grown up within the South itself, with important buying power.

A whole new list of industries have grown up around southern furniture manufacturing. There are numbers of mirror plants, several finishing material plants, wood-working machinery plants, and fibre board container factories. Two important manufacturers are locating branch plants in the High Point area, one to make furniture hardware and one to make furniture conveyor systems for factories. A host of distributors, warehouses and manufacturers agents have come to this area. While the furniture manufacturers draw on the world for their raw materials, the southern industry is becoming more and more a center within itself.

Historically and geographically, High Point, North Carolina, is the center of southern furniture manufacturing. More than two-thirds of all the furniture made in the South is made within a 125-mile radius of High Point. In this area are 122

companies operating from one to six plants each, who make 125 million dollars worth of furniture (at wholesale) annually. Fifty per cent of all the wooden dining room and bedroom furniture made in the United States is now made in the South; thirty per cent of all wooden furniture made in the United States is made in the South.

The 125-mile radius from High Point referred to as the High Point area contains the greatest concentration of furniture manufacturing in the world. In this area are located the two largest furniture manufacturers in the world. While North Carolina has more plants, Virginia is a close second in total production.

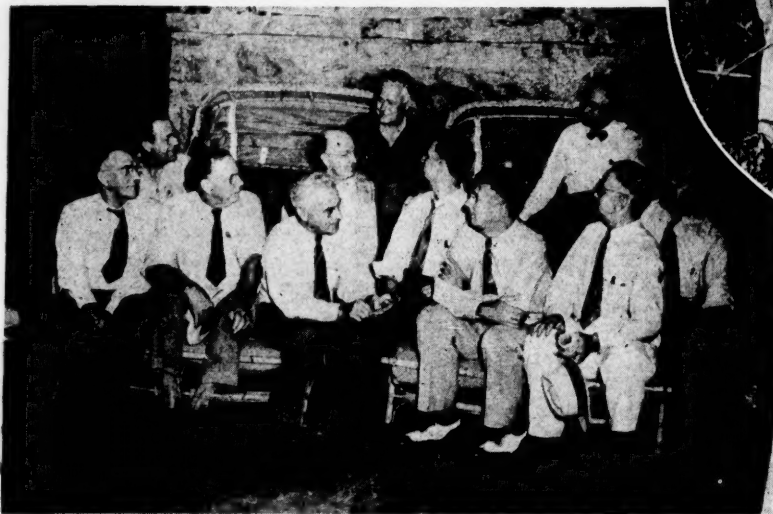
Temporarily the entire industry is drastically affected by the war. The Southern Furniture Exposition Building was taken over by the government in 1942 to house the offices and files of the Demobilized Records Division of the War Department. Only the building offices, offices of the Southern Furniture Manufacturers Association, and a few first floor exhibitors remain. It continues to function however as a headquarters and clearing house of information for hundreds of visiting buyers every week—an indication of how important this southern furniture industry has grown to be.

Relatively, the southern furniture manufacturer has done an amazing job of war work and kept up steady flow of civilian merchandise as well. His remarkable woodwork-

(Continued on page 76)

Georgia Enthusiasts Invest \$1,000 Each To Prove That Depleted Soils Will Yield Richly If Built-up And Pay Dividends In The Bargain

by HARRY HOUSTON



AGRICULTURAL Georgia, great as it is, has long had a weak spot. While the yield of its farms is tremendous, its average return per acre worked has been reduced considerably by its sections of poorer, depleted soils; and 700 progressive Georgians, impatient with mere troubled talk, are chipping in their knowledge and sweat and \$700,000 to do something about it.

They are putting into action the procedures suggested in what is now known familiarly as the "Callaway Plan," whose originator is Cason J. Callaway, chairman of the Agricultural Panel, Georgia Agricultural and Industrial Board. The Plan has drawn the interest of the agricultural nation, has been discussed favorably in Congress, has been editorialized upon in numbers of publications, and watched intently.

"Poor land is the basic obstacle to profitable farming," says Mr. Callaway, by vocation an industrialist (former President of Callaway Mills, ex-President of the American Cotton Manufacturers Association, present director of U. S. Steel), by avocation a large-scale experimental agriculturist (28,000

acres on his Blue Springs Farms).

"Georgia farm land as a whole," he continues, "including the recent rise in prices, will average about \$30 an acre. We are forced to compete with farm land outside the Southeast that will average about \$150 an acre. I believe you will agree that we can no more do that than a man with a broken-down \$300 truck can compete against a man with a \$1,500 truck."

As the value of farm land is largely determined by the value it will produce, this over-all 5-to-1 competition against which Georgia farmers struggle has caused many a Georgian brow to wrinkle.

"For generations," says the Agricultural Panel's Chairman, "our forefathers literally 'mined' the soil in growing cotton. There seemed to be an abundance of land, and farm labor was plentiful and cheap; when one area was worn out, another was taken over, and the abandoned land was left to continue to

Upper left—Progressive Georgians discuss the Callaway Plan with its author (middle, back.)

Upper right—Reclamation engineers lay out a tract for building-up.



THE CALLAWAY PLAN

erode. Eventually our depleted land was largely left to tenants whose only means of existence was the planting of annual cash crops, which continued and magnified the depletion of the land's richness.

"Annual cash crops are largely soil-depleting. In annual crops you must start all over again every year. Probably 95 percent of all cash crops in our state come in this category . . . The result is that we have poor land—land that is worn out and eroded away with cultivated crops which increase erosion, taking everything from the land and putting nothing back.

"I am convinced that the greatest problem in Georgia is the situation of the Georgia farmer. I am equally convinced that by wise, courageous leadership, this problem may be largely solved."

To relieve the farmer's difficulties, the Panel suggested four needs; the improvement of the soil, the availability of long-term commercial credit, the use of machinery to work the crops, and the establishment of processing plants near the farms.

Taking first things first, definite steps have been taken to demonstrate dramatically and graphically that exceptional dividends result

MANUFACTURERS RECORD FOR

from the investment of thought, effort, time and money in building-up and increasing the fertility of soil.

The plan is summed up by again using the comparison of the trucks. "Now," the Panel suggests, "if we take it for granted that we can't take a \$300 truck and compete with a \$1,500 truck, still, if the \$300 truck is all we have, we might spend \$400 replacing the moving parts, and, with this \$700 truck, compete with the \$1,500 truck. Similarly, we might take this \$30 land and spend \$40 an acre on it, giving us \$70 land, and with this \$70 land compete with the \$150 land."

Mr. Callaway, among others, has tried it. "The simple mathematics of the situation is startling," he says. "I have had actual experience spending \$40 an acre on this average uplands land and worse, and, as an example, producing 58 bushels of oats to the acre. The average production of the state is less than 18 bushels of oats to the acre, so that properly prepared and built-up land produces 40 bushels more per acre."

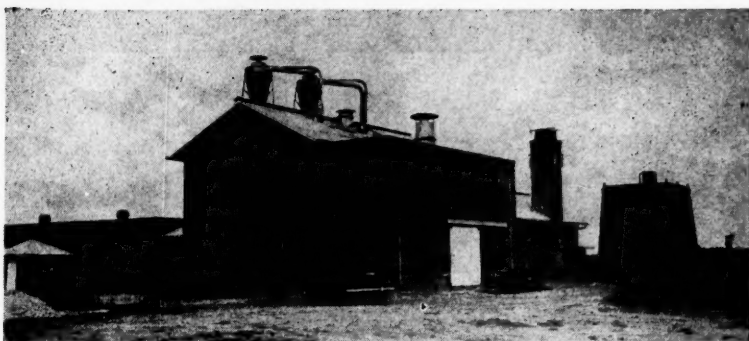
"This investment of \$40 an acre in building up the land would, at 6 percent, make an annual rental of less than \$2.50 an acre; or, at 10 percent, an annual rental of \$4 an acre. Taking the lowest normal price of oats, at 40 cents a bushel, would produce \$16 more revenue from the acre of built-up land, at a cost of from \$2.50 to \$4."

"It costs no more to plant, fertilize and harvest oats on good land, that will produce 58 bushels to the acre, than it does on our average land which can produce no more than 18 bushels to the acre."

"Once the land is built up, it can be kept in this condition by turning in cover crops, which are soil-improving instead of soil-depleting."

But that poor land must be built-up before the turning in of cover crops becomes greatly helpful is pointed out: "If a cover crop is planted on poor land, a minimum of fertilizer value is realized, due to the small growth of the cover crop itself. The lack of humus in the soil causes it to clod if plowed too wet or too dry, and there are few days in the spring when neither of these conditions prevail."

"Turning in cover crops in one-half of the year, and attempting to grow crops during the other half, on



Dehydration plant at Blue Springs Farms, Hamilton, Georgia.

this worn-out land, is not practical. The land itself is too poor to grow a cover crop. For example, you can plant Austrian winter peas and turn them under for, say, \$5 an acre. If this is done on poor land, the equivalent fertilizer value of the turned-under crop due to stunted growth would probably be less than this \$5 per acre cost.

"But the Great Creator smiles on good land."

Excepting for the letting of land lie fallow for a long period of years while the decay of natural growth increases the soil's fertility, and on certain lands even this is of little benefit, there is but one way to enrich soil. Time and, what is inescapably more, money must be spent on it.

For instance: "It takes at least \$40 an acre to make a good pasture out of our average land. Three tons of lime cost \$12; 1,000 pounds of acid phosphate, \$8; one sub-soiling and four or five harrowings and cultipacking to produce a seed bed, \$5;

Participants in the Callaway Plan inspect lush yield of treated soil.



seed, \$15. These seed will include, for example, White Dutch clover, crimson clover, Red Top clover, lespedeza, Orchard grass and, on rolling land, sprigging of Bermuda grass. If this work is done, then with our rainfall and long growing season, we can compete with other pasture land, outside of the South, which sells for \$100 to \$300 an acre."

Georgia farmers, in the main, have been fully aware of this, but several factors have delayed its widespread practice. Many simply lacked the money and could not or did not know how to get it. Others just rocked along with a feeling of "come day, go day, God send Sunday." Still others, on the better lands, thought they were doing well enough. A few were striving, discontented with anything but the maximum in productivity. All these groups were nevertheless in the mood to welcome the advent of the aggressive, progressive "Callaway Plan."

The plan calls for the formation of 100 corporations covering as many of the differing sections of the

(Continued on page 68)

SHEET STEEL PRODUCTS

*Your Many
Problems
Capably
Solved*

*Expert
Engineering
plus Careful
Research*



DUST

COLLECTION

**FOR EVERY CLASS OF
INDUSTRY WHERE DUST
OR MATERIALS ARE TO
BE EFFECTIVELY REMOVED**



... These Have Made

it possible for our staff of skilled operators to approach your problem in a practical manner making full use of the ideas we have acquired during long years of operation together with a refinement of detail possible only when plant equipment and personnel are of the highest type. We are prepared to give your order the benefit of new and improved methods of production and we are certain that entire satisfaction would be the result of our efforts upon your behalf in the field of sheet metal fabrication or in the survey and construction of your dust removal requirements.

DIXIE MFG. CO., INC. 1314 RUSSEL ST. BALTIMORE, MD.

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CURIOUS alloys, mere laboratory novelties in 1941, and precision casting processes have afforded the Allies arms and equipment that earn even the grudging admiration of our foes. These new metals, compounded to withstand the tortures of bottle usage, are expected to provide better peacetime metallic products, from harder cutting tools to non-rusting hairpins to springs with greater resilience to super-efficient vehicles.

Not all of the metallurgists' accomplishments have been revealed, but many of the results obtained are observable and were accomplished in nearly all cases by the ingenious use of materials long regarded as experimenter's curiosities or used commercially only in minute quantities for highly specialized goods.

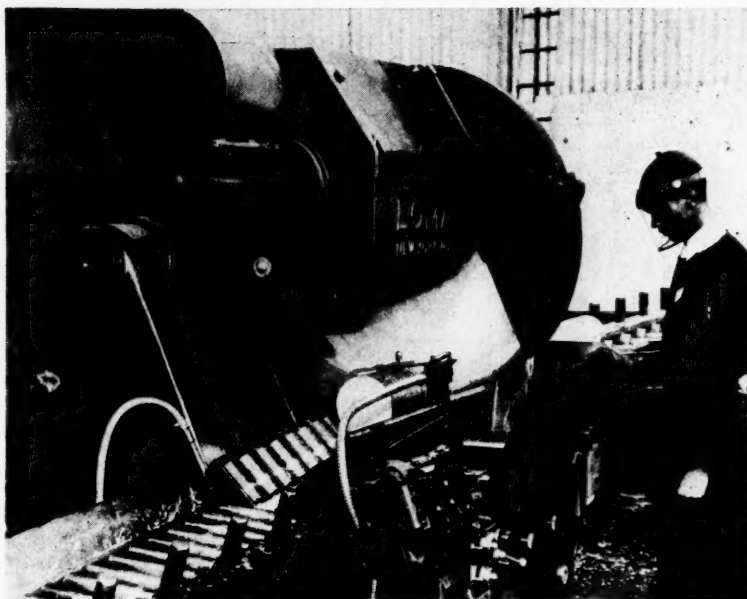
Through the necessities of war the crucibles of the Allies, and especially of this country, have handled more and more of such rare ores as columbium and beryllium. By using them as alloys with commonplace metals—steel, nickel, copper, etc.—new and more efficient metals of highly diverse qualities have been produced.

A study of the unique properties of these newcomers, with calcium being the queerest and most versatile actor of the lot, leads to prophecies of peacetime metals with efficiencies undreamed of a decade ago.

The steel in sub-stratospheric aircraft which drove the Huns from French skies probably contained a little zirconium, for when it is used as an alloy it gives extra strength at low temperatures. Zirconium also provides the actinic rays which give light in flash bulbs and photographers' flood lamps.

Many-sided tantalum is as non-corrosive as glass yet is stronger than steel. As an oxide it is used in some lenses. It is an essential in electronic tubes. As a catalyst it is used in the making of synthetic rubber, and because it is acid-resistant it is now found in chemical apparatus.

The present many uses of columbium because it gives stability to steel under severe conditions, have evoked predictions of its more widespread use in the future. It is thought that columbium serves as a binding agent which diminishes the deterioration setting in when steel



Unheralded Alloys Prove War Allies

is subjected to extremely high temperatures. A steel-columbium marriage is often found in much of the chemical industry's equipment.

Cobalt, a gleaming white metal found mainly in the Belgian Congo, also imparts ruggedness to other metals with which it is alloyed, and is extensively used today in extra-hard cutting tools and heat-resistant equipment.

The lightest metal in commercial use, beryllium, when combined with copper, gives springs able to withstand excessive tension for a greater time than any combination now known.

The sixth and most versatile character of the lot, calcium, cannot be dismissed in one paragraph or several. Calcium is all about us, yet until lately only little of it has been available. Every sea shell contains calcium carbonate; it is in marble and limestone. But to extract pure calcium is a teasing and exasperating task.

The real secret of the process is still a secret, but it is known that the metal is derived by introducing an electric current to dry-as-dust calcium chloride salt. The metal forms at one end of the cell, chlorine is given off at the other. Very precise temperature controls are required as the melting points of the metal and the salt are approximately the same. Another problem is in keeping apart the calcium and chlorine which reunite explosively if given the chance. How this is done is the secret the enemy would like to know.

All pre-war calcium metal came from France or Germany at the rate of about 20 tons per year, a tiny amount compared to its present production in this country. The Union Carbide and Carbon Corporation, sole American producer of calcium metal, has not made public its figures on production.

Once calcium is available for al-

(Continued on page 81)

Columbium and zirconium, cobalt and tantalum, calcium and beryllium, produce war-winning alloys, promise finer peacetime equipment.

Todd Southern Yards Push War Production to Hurry Conflict End

VITAL production sources for America's "bridge of ships" to Berlin and Tokyo, three of the South's biggest shipyards — Todd Houston Shipbuilding Corporation, Todd Galveston Dry Docks, Inc., and Todd-Johnson Dry Docks, Inc. — today are playing a stellar role in the war effort by putting every possible resource behind the nation's drive to outbuild, outfight and outwit its Axis enemies.

John D. Reilly, president of the parent company, Todd Shipyards Corporation, in a recent report listed the complete record of ships built, repaired or converted at 10 Todd yards since the date of Pearl Harbor, Dec. 7, 1941.

For Todd Houston this showed a total of 154 vessels built, and for Todd-Johnson and Todd Galveston respectively, 2,182 and 1,372 repaired or converted.

Todd-Johnson, situated at New Orleans, was the Todd establishment handling the greatest variety of ships, according to Mr. Reilly's report. Of 2,182 vessels which were restored to active service at this busy ship repair plant, 183 were tankers, 73 troop ships, 478 cargo vessels, 40 combination cargo and passenger vessels, 167 barges, 20 ferries, 19 dredges, 3 corvettes, 14 destroyer escorts, 2 gunboats, 10 submarines, 21 mine planters, 2 mine tenders, 70 cutters, 156 tugs, 1 trawler, 90 patrol boats, 44 mine sweepers, 53 sub chasers, 4 retrievers, 236 LST's, 211 LCT's, 1 net tender, 6 water tankers, 2 frigates, 14 whalers, 67 river tow boats, 2 derrick vessels and 16 miscellaneous craft.

In another report, covering the period between Dec. 7, 1941, and Sept. 30, 1944, Mr. Reilly revealed a total of 16,393 ships built, repaired or converted by Todd yards,

boosting America's war-time sea strength by 79,556,000 deadweight tons.

Of Todd's three principal Southern yards, Todd Houston, which is devoted to shipbuilding exclusively, can point to an enviable record of sustained production, and, with just pride, to the Maritime Eagle pennant which flutters from its masthead—symbol of 11 consecutive Maritime Commission awards for surpassing production schedules. The Eagle emblem was awarded the plant May 22 as the 137th ship built there slid down the ways. First keels were laid at the Houston yard on July 18, 1941, when plant facilities and equipment were far from completed.

The greatest shipbuilding plant in the Lone Star State is built on a swamp. Houstonians have fond memories of trips to a water-hemmed tract of swamp-land they once roamed with gun in hand and visions of a savory roast duck sizzling over a camp fire spit. Today hunters of another kind roam the area, armed with welders' rods and burners' torches. And they are after bigger game than ducks.

A major portion of the 300-acre tract had been swamp, and 1,100,000 cubic yards of dredging and 500,000 cubic yards of filling had to be completed before even a single building could be erected. Part of the old bayou basin that had been a familiar landmark between Irish Bend Island and the mainland is now a launching basin, and dirt dredged up when it was deepened is today part of the peninsular link between the former Island—once a duck-hunter's paradise—and the main body of the shipyard.

Actual construction of the huge Houston plant was begun March 20, 1941. A half million pounds of steel

went into building the yard. A shell road and standard-gauge railroad also were built. The road extended two miles from the main plant entrance on LaPorte Road to the shipyard site. One spur of the railroad connected the Port Terminal Railroad to the plant. Thousands of steel piles had to be sunk to provide a firm, safe foundation for the plant structures, which include a fabricating and machine shop, a plate shop, a main warehouse and a lumber storage shed.

The administration building cost \$20,000. The restaurant seats a thousand workers. The locker and washroom contains lockers for 4,000 men. A personnel management building, a completely equipped hospital and plant clinic, and "clock alleys" of sufficient size to pass a 5,000-man shift in 15 to 20 minutes were also erected.

Altogether, the plant maintains six miles of standard gauge railroad track, with branches, spurs and cross-overs, and operating on the system are the Company's own Diesel-driven locomotives, seven 25-ton locomotive cranes, and a fleet of railroad flat cars for transporting materials. A regular railroad maintenance plant provides for proper upkeep and repair of the "Line."

Between building berths and along outfitting berths of the yard, huge traveling whirler cranes are operated, each capable of lifting 25 tons at a 50-foot reach. Self-propelled, the cranes are mounted on towers 30 feet high and operate on special tracks with a railsread of 25 feet. Shops are equipped with 5-ton overhead traveling cranes, and at the waterside there is a huge 50-ton crane of tremendous reach for installing engines and boilers in ships after they have been floated.

One of the most unusual pieces of equipment in the yard is the bending slab.

A huge, flat section of cast-iron on which ship frames are bent to shape, 100 feet long and 75 feet wide, the bending slab required more than a million pounds of cast iron for its construction and is served by three gas-fired furnaces for heating shapes and plates. These furnaces range up to 60 feet in length, and run anywhere from four to ten feet in width.

Fitting-out buildings include a

machine shop, blacksmith shop, pipe and coopersmith shop, tinsmith shop, joiner and carpenter shops, as well as shops for painters, riggers, and numerous other trades necessary for the diversity of work required in the building of ships. An underground system of piping delivers compressed air to outlets at all working areas in the yard by means of two air compressors of 3,000 cubic feet capacity each, housed in separate buildings.

The plant is completely self-sufficient in the matter of police and fire protection, maintaining a special force of armed guards and a fully-equipped fire-fighting force operating on three shifts.

Underground servicing includes a complete fresh-water system covering all parts of the yard, a salt water system for utility and fire protection, a natural gas system for supplying fuel, and oxygen, acetylene and complete electric power hook-ups for all shops and working areas. A complete drainage and sewer system covers the entire yard area. Parking area for workers' automobiles provides space for the parking of thousands of cars. By the time construction work on the plant itself had been completed, cost of wages and materials for the vast development had mounted to more than \$3,000,000. The main shop of the yard was not ready for full use until the November following the first keel-laying. Yard personnel expanded from approximately 200 men on June 1, 1941, to more than 20,000 within one year. Today, with the huge plant so closely guarded that the average Houstonian can only glimpse it from the LaPort Road, several miles away, Houston Shipbuilding is recognized as Texas' biggest single industry. Annually, it requires \$48,000,000 in materials and \$60,000,000 in payrolls to keep what is now a \$5,000,000 plant whizzing at top speed and peak efficiency.

Todd Houston delivered its first Liberty ship to the Maritime Commission on May 27, 1942, and the yard received its first Maritime Commission "M" on the following Nov. 10. In 1942, the Irish Bend yard turned over 32 vessels to the Maritime Commission, a figure which was more than doubled in 1943, when 74 ships were delivered. And by July of this year, in a con-

tinuing acceleration of production, the Houston yard had completed a total of 45 vessels for the Commission, with prospects of reaching close to the 100 mark by the year's end.

Todd Shipyards Corporation's other big Texas plant—Todd Galveston Dry Docks, Inc.—is, like Todd-Johnson Dry Docks in New Orleans, mainly a plant for the repair and conversion of ships. This important unit of the Todd organization was launched without fanfare on Sept. 1, 1934, when the Corporation acquired control of Galveston Dry Docks.

Galveston considerably antedates Houston as a center of shipbuilding activity. No vessels were actually built there during World War I, but the City did acquire at that time—1918—its first modified "taste" of the industry when 26 wooden-type steamships were brought there for outfitting.

Primarily a yard for ship repair only, Todd Galveston undertook a program of tanker construction for the U. S. Maritime Commission, and under the burgee of Todd's, it built a number of these highly es-

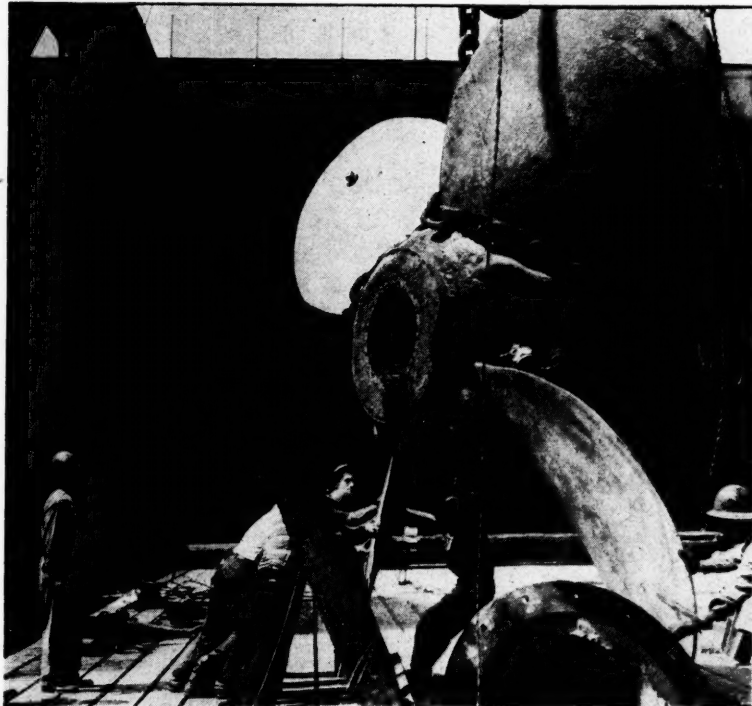
sential vessels for use in the war effort.

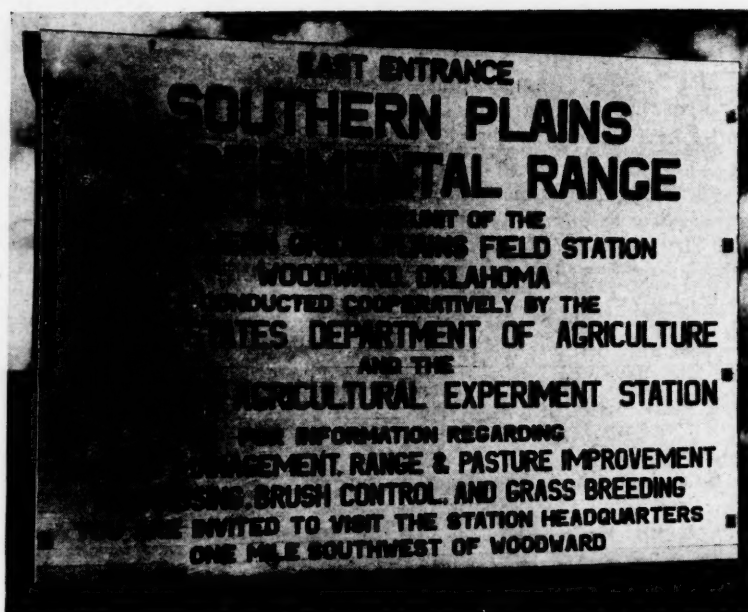
Between 1935 and 1939, the Galveston Todd yard repaired an average of 350 ships a year, a figure which had increased to 400 by 1940, and to 425 by 1941. Then came the Japanese attack on Pearl Harbor, and, concomitantly, a vastly stepped-up production rate at the Galveston plant. In 1942, more than 600 ships were handled by Todd's at Galveston, and in 1943, close to 1,000, damaged or war-crippled, were rehabilitated there for a return to active service. The current year, up to July 1, saw more than 500 vessels of all sizes come and go, and by the end of the 12-months period, the number repaired and restored to duty is expected to rise considerably above the 1,000 mark.

It is a far cry from the days of 1918 to the Galveston of 1944—where, at the modern Todd Galveston Dry Docks, Inc., tankers, cargo vessels, gunboats, transports and numerous other types of war-wounded, ocean-battered vessels come haltingly into dry dock to be repaired, refurbished and rejuvenated for the grim tasks of war. The jobs—embracing every conceivable kind of ship repair work, from restoration of huge damaged sections

(Continued on page 82)

Below—A "wheel gang" removes a 24-ton propeller at one of the Todd docks.





"DUST BOWL" Now the "BEEF BOWL"

OF interest to the entire South is the annual "range improvement day," always the first Saturday in October, featuring an inspection tour of grazing experiments with beef cattle, under the sponsorship of the U. S. Southern Great Plains Field Station at Woodward, Oklahoma. The tour, which includes an entire day with a three-

steer outdoor barbecue at noon, is arranged and directed by David A. Savage, senior agronomist at the field station. Those who make up the touring party of approximately 2,000 are farmers and ranchmen from the five states that come together in this portion of the Southwest — Oklahoma, Kansas, Colorado, New Mexico and the Texas Panhandle. Always, too, there are interested corps men from field sta-

Below—Ranchmen inspect grass experiments.



tions and agricultural colleges throughout the nation, officials from departments in Washington, and newspaper and magazine representatives.

This particular area, which during the '30s constituted in great part the widely advertised "Dust Bowl," has now become famous because of the development of its grass, declared to be its most important crop, and chiefly native grasses. Back a number of years ago there was much talk of making two blades of grass grow where only one grew before. Mr. Savage has that beat. He had the whole devastated dust bowl as his problem, and it is now covered with grass, to such an extent that it is now known as the "Beef Bowl."

During the 1944 tour of this area, where Mr. Savage has been experimenting with various grasses and their fattening effects on cattle, the tourists looked over plats and fields, where grow buffalo grass, side-oats grama, blue grama, African and other love grasses and numerous others. In fact, according to Mr. Savage, thousands of strains of various native and introduced grasses have been selected for experiment and are now undergoing intensive re-selection, selfing, and hybridization to develop superior types for this region. He says that the outstanding quality, production and general performance of these strains indicate the possibilities for vast improvement for further breeding work. These are tested unceasingly in nursery rows, experimental plots and field seedings.

The experiments, carried on continuously by the Woodward field station, cover two separate tracts of land. One is the home base of 1,680 acres adjoining this city, where headquarters are maintained, and the other is a native range of 4,315 acres, fifteen miles northwest, alongside the site of old Fort Supply, which was established in 1868 by General Phil Sheridan as a base for General George Custer in campaigning against the Cheyenne, Arapahoe, and other plains Indian tribes. Here Wolfe and Beaver river join to form the North Canadian. On this range different sys-

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Above—Hereford yearlings that made big weight gains on pasture. Those at the left are on original sage brush land, those at the right, on moved sagebrush.

tems of grazing by beef cattle are in progress all the time.

Several herds of cattle were inspected by the tourists, following the barbecue luncheon at noon. These cattle are being pastured on grasses experimentally, on different types of wild grass range, both on land from which the sage brush has been cut, and on genuinely old-time sagebrush acreage. Each steer in the herds has a brand number and is thus carried on the field station records. At the end of each month each steer is weighed and a record is made of just what weight increase has been made on the various grasses and types of range. This information is passed on to cattlemen and others interested.

The effectiveness of the field station and the results achieved by its continuous research have been distinctly apparent since the wonderful come-back the dust bowl has attained. The station was set up in 1914 as an experimental farm for 137 counties in those portions of the five states that are close neighbors. Twenty years later this area was to include the dust bowl. In fact the dust bowl was this particular field station's problem and its come-back has been such that this vast area again is one of the greatest contributors to the nation's food basket.

Regrassing, as promulgated by the field station, has had its biggest results and made the greatest showing of any one spot in America, right in the old dust bowl. At the

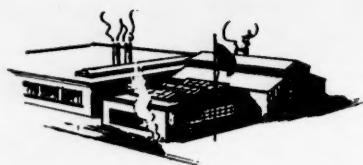
present time this is the nation's most active and most successful re-grassing spot. The greatest harvesting of native grass seed, chiefly buffalo grass, is in this area, as is also the greatest replanting of native grass seed. On the John McClure ranch, twenty miles west of Woodward, has been completed more native regrassing than any other one place on this continent.

Below—John McClure, ranchman who has made a major contribution to re-grassing with native grass, shown with truck load of buffalo grass seed.



Grass attains its utmost value in this so-called "short grass" country, an extensive ranch area, where annually cattle by hundreds of thousands fatten for market. It was an immense cattle pasturing area in the days of the open range and prior to that it was the native home of the buffalo, antelope and deer and the big pasture of wild horse herds. For hundreds of years Indian tribes battled for possession of this area because of its buffalo. The wild animals came here because of the nourishing buffalo grass with its flesh producing qualities, which

(Continued on page 64)



Southern Industrial Expansion--October

ALABAMA

Facilities—Federal Power Commission announced its order authorizing Southern Natural Gas Co., Birmingham, to construct and operate additional facilities in Alabama, Georgia, Louisiana and Mississippi.

ANDALUSIA—Freezer Plant—Henderson Black & Green, Troy, have contract at \$24,577 for construction of freezer plant for Andalusia Quick Freeze, Inc.

BIRMINGHAM—Expansion—Alabama Power Co., plans expansion program for new construction totaling \$30,000,000 for early post-war years.

ARKANSAS

SWEET HOME—Reservoirs—Grand Prairie Irrigation Co., completing plans for system of reservoirs to provide water for rice growers.

FLORIDA

BRADENTON—Locker Plant—Nicholas Monaco, Gen. Mgr., for Mario Caruso Interests let contract for construction of \$50,000 food storage locker plant.

FORT LAUDERDALE—Plant—Broward Deep Freeze & Cold Storage Corp., incorporated by R. K. Saunders.

MIAMI—Building—Key Concrete Homes Inc., incorporated by Henry H. Moore, Langford Building.

MIAMI—Factory Building—John B. Orr, Inc., have contract for construction of factory building to cost \$11,000 for Eagle Tire Co.

MILTON—Extension—Escambia River Electric Co-operative, plans full-scale construction of rural power lines in Santa Rosa and Escambia Counties as soon as materials can be obtained; in Santa Rosa County lines will be built to Catawba, Munson, Berrydale, Wallace, Pace and Mulat.

ST. PETERSBURG—Plant—White Manufacturing Co., Inc., chartered by C. A. Hancock, mattress and bedding.

GEORGIA

ATLANTA—Building—The Atlanta Constitution, Forsyth and Alabama Sts., plans construction of a 4 or 5-story newspaper printing plant and offices.

BOLTON—Plant—Georgia Power Co., Atlanta, let contract for addition to Plant Atkinson, on the Chattahoochee River near Bolton; a 60,000 KW addition to existing 120,000 KW plant.

SANDERSVILLE—Factory—Minus Goodrich acquired building; will remodel for pants and shirt factory; post-war.

SAVANNAH—Cars—Federal Court authorized Central of Georgia Railway Co., to purchase 18 passenger cars and orders have been placed.

KENTUCKY

ASHLAND—Empire Foundry and Machine Corp., capital \$50,000 incorporated by Reta Green; foundry.

HAZARD—Mines—Big Block Coal Co., incorporated by James W. Esta.

IRVINE—Addition—L. H. Hargett, will construct \$22,000 addition to Hamilton-Carhartt overall factory.

LOUISVILLE—Annex—Girdler Corp., has building permit for \$25,000 remodeling and expansion of building to house research and developing laboratories.

LOUISVILLE—Plant Facilities—Defense Plant Corp. executed contract with Park &

Tilford Distillery, Inc., New York, to provide plant facilities at Louisville, at cost of \$250,000.

MILPORT—Line—Louisville & Nashville Railroad authorized by WPB to build a 2.88 mile branch line near Milport, Ky.; will open up a 5,000 acre coal field with production of about 700,000 tons of coal yearly.

MILTON—Distillery—Paul C. Dant, Owensboro, will erect distillery and flour mill on site of former Richwood distillery near Milton.

WHITESBURG—Mill—Tennessee-Eastman Corp., Kingsport, sold saw mill and timber interests on Robinson Creek to the W. M. Ritter Lumber Co.; plan extension and possible installation of additional mill.

LOUISIANA

DENHAM SPRINGS—Gas—Chamber of Commerce interested in program to bring natural gas to city; L. N. Benton, Sr., appointed to report on project; estimated cost \$45,000.

NEW ORLEANS—Bakery—John A. Wolfe Contracting Co. has contract for constructing brick bakery for L. B. Ruddock.

MARYLAND

BALTIMORE—Building—General Mechanical Engineering & Contracting Co. has contract for lasting building for Heat & Power Corp.

BALTIMORE—Locomotives—Baltimore & Ohio R. R. placed order for 10 mallet type locomotives with Baldwin Locomotive Works, Philadelphia, Pa.

BALTIMORE—Plant—Consolidated Engineering Co., Inc., has contract for beef killing plant; for Schlumberger-Kurdle Co.

BALTIMORE—Plant—Davis Construction Co. has contract for manufacturing building for Tomke Aluminum Co.

MISSISSIPPI

JACKSON—Addition—Ricks Storage Company plans construction of new addition to building, cost, approximately \$25,000.

JACKSON—Expansion—Armstrong Cork Co., Lancaster, Pa., has selected site of approximately 20 acres at Jackson as site for future expansion of company's manufacturing facilities; plant to be erected when equipment becomes available.

PHILADELPHIA—Plant—Town defeated \$80,000 bond issue for establishment of glove plant.

PONTOTOC—Plant—Irvin Manufacturing Co., New Albany, Miss., will erect shirt manufacturing plant; cost \$20,000.

MISSOURI

Electrification—REA has allotted \$190,000 as loans to 3 REA financed rural electric co-operatives for construction of 175 miles of power lines to serve an additional 724 rural consumers in southern Missouri and Illinois.

CASSVILLE—Airports—Cassville Air Port Association, Inc., capital, \$25,000; incorporated by Roland Hutchens, Cassville, operate flying school.

KANSAS CITY—Plant—DeRaef Corp., acquired 3-story building, for manufacture of milk foods; cost of improvements, \$20,000.

ST. LOUIS—Addition—Valley Furniture Co. plans addition and improvements to furniture plant.

ST. LOUIS—Cooler Building—A. H. Haessler Building and Contracting Co. has contract

for cooler building, for S. & E. Glazer Packing Co.; cost, \$18,000.

ST. LOUIS—Diesels—Missouri Pacific R. Co., placed order for 7 Diesel electric, two with American Locomotive, 3 with Baldwin Locomotive Works and 2 with Electro-Motive Corp.

ST. LOUIS—Enlargement—National Slur Rejector Co., starting work increasing facilities for plant.

ST. LOUIS—Equipment—Defense Plant Corporation authorized an increase in its contract with McDonnell Aircraft Corp., St. Louis, Mo., to provide additional equipment at a plant near St. Louis, at a cost of approximately \$40,000, resulting in an over-all commitment of approximately \$720,000. McDonnell Aircraft Corporation will operate these facilities, title remaining in Defense Plant Corp.

ST. LOUIS—Mullin Frozen Foods, Inc., capital \$20,000; incorporated by Archie R. Mullin, frozen food plant.

ST. LOUIS—Plant—American Can Co., Chicago, Ill., will acquire naval ordnance plant at St. Louis, now operated by Amertorp Corp., a subsidiary; manufacture cans.

ST. LOUIS—Warehouse—J. S. Alberici Construction Co., has contract for warehouse, office and retreading plant, for B. F. Goodrich Co.

UNIVERSITY CITY—Lumber—Lumber Milling Co., chartered by E. Linton Joaquin; lumber milling.

WEBB CITY—Mine—Earl-Keith-Mining Co., chartered by Earl Childress, Baxter Springs, Kansas; mines zinc ores.

NORTH CAROLINA

BURLINGTON—Plant—Duramold Division of Fairchild Engine and Airplane Corp., now operating in New York City, will move entire manufacturing operations to Burlington.

CHARLOTTE—Abattoir—F. O. Godley of Godley Brothers, operating livestock plant, plans erection of \$150,000 abattoir.

GREENSBORO—Appliances—Southern Electronics, capital \$50,000, incorporated by Loren B. Harrell of East Point, Ga.; electrical appliances.

HICKORY—Textile Mills—Windy City Knitting Mills, capital \$100,000; incorporated by C. O. Ellis; operate textile mill.

LINCOLNTON—Plant—Carter Knitting Mills, capital \$100,000 incorporated by E. H. Gregg, Gastonia; manufacture knitted cloth.

MANTOE—Lumber—Kitty Hawk Lumber & Realty Corp., capital \$100,000; incorporated by Martin Kellogg, Jr.

WILMINGTON—Plant—Southern-Butane Gas Corp., plans construction of \$15,000 office and warehouse building; recently purchased physical assets of Eastern Butane Gas Corp., New Bern.

WILMINGTON—Terminals—Wilmington Port Commission will apply to RFC for a self liquidating loan of \$635,000 for public terminals and tobacco warehouses.

OKLAHOMA

Expansion—Federal Power Commission authorized the Consolidated Gas Utilities Corp., Oklahoma City, to set up additional pipeline facilities in Oklahoma and Kansas; in Oklahoma the company is authorized to build and operate about 3 1/2 miles of 8 5/8-in. line in Caddo county from company's Lawton-Comanche system.

GYMOM—Carbon Black—Government plans erection of carbon black plant at cost of \$1,500,000 to be operated by Cabot Co. of Boston, Mass.

OKLAHOMA CITY—Extension—Cities

(Continued on page 64)

Chemical Meet and Exhibits Slated for Chicago

Eyes of the industrial chemical world will focus Nov. 15 to 19 on the National Chemical Exposition and the National Industrial Chemical Conference to be held at the Coliseum in Chicago. The third biennial presentation sponsored by the Chicago Section of the American Chemical Society will be given added importance because of vital contributions of the industry to the Allied war effort and its vast significant postwar civilian potentialities.

Highlighting the five-day conclave and show will be the industrial conference with daily programs to be addressed by noted authorities from many sections of the country. Prominent among the speakers will be Charles F. Kettering of the General Motors Corporation, who will make the main address at the November dinner meeting of the Chicago Section on Friday evening, Nov. 17.

The conference and exposition programs, devoted to the field of applied chemistry, are designed to be of interest to chemists, engineers, bankers, educators, manufacturers whose process in some way involves the use of chemistry and all those holding technical and management positions.

Exposition exhibitors will represent all phases of the industry including chemical companies, machinery and laboratory apparatus. The exhibits will stress the extraordinary properties of materials and uses of equipment, in order that the show will be strictly in tune with the ethics and objectives of the sponsor, to foster chemistry and its application. Booths will be manned by experts conversant with the technical aspects of products exhibited. Visitors may secure scientific information and view new discoveries and developments in the science of chemistry and its application and progress in many fields of activity.

Low Capacity Rotary Pump

Final laboratory and field tests have been completed on a new direct connected small capacity rotary pump designed and built at the Blackmer Pump Co. plant in Grand Rapids, Mich. J. B. Trotman, general sales manager of the company states that the new unit is now in production. The specifications are as follows: Capacity, 1/2 GPM; Discharge pressure 100 psi; Direct connected by a flexible coupling to an 1800 RPM motor. Overall dimensions: Length 11 1/4", with 5 1/2" height 5", weight 15 1/2 lbs.

Built in relief valve are optional and the units are available for belt drive, as a pump only, or the rotating elements may be supplied where the pump is installed as an integral part of a machine. Due to the special "bucket design," these pumps are self-adjusting for wear, maintaining normal capacity throughout the life of the buckets, which are easily replaced when worn out.

May Foundation Moves

The George S. May Business Foundation, a non-profit research organization operated in the interest of private enterprise, moved October 1st to more spacious, better-equipped quarters at 840 N. Michigan Ave., Chicago.

This organization was founded by George S. May, prominent business engineer, to supply a constant flow of business facts upon which major decisions of industry and management could be based. Subjects for research and development are usually chosen by trustees and officers of the Foundation in collaboration with editors of leading trade magazines. Requests for special business studies are carefully considered, and those of widest interest and application are assigned to appropriate members of the large research and writing staff.

Such studies, when completed, are furnished to requesting editors without charge. The Foundation reserves only the right to reprint the article for distribution to its list of 130,000 key executives throughout the United States and Canada, also without charge. Additional copies are mailed free to any executive requesting them on business letterhead. During the past two years the Foundation has supplied 5,955,000 copies of its studies in regular mailings, and an additional 71,000 in response to special requests. A bulletin listing all available Foundation studies, covering many industries and special problems of business, will be mailed free for the asking.

In its new quarters the George S. May Business Foundation finds room for its ever-expanding research and writing staff; for its huge library; for its busy reception and consultation requirements. The Foundation extends a cordial invitation to all editors and business men visiting Chicago to call at its new quarters and be shown how its many reports of aid to business originate and are handled.

McCullough Named Masonite President

Matthew P. McCullough, for many years treasurer and a director of the Masonite Corporation, manufacturers of structural insulation, has been appointed president by the board of directors of the corporation to fill the vacancy created by the recent death of Ben Alexander. At the same time, Charles J. Winton, Jr., also a director, was named to succeed Mr. McCullough as treasurer, and John M. Coates, legal counsel of the corporation, was appointed a director.

The new president is widely known in the lumber and allied industries, with which he has been associated throughout his business career.

Wilson Becomes A.T.&T. V. P.

Leroy A. Wilson was recently elected vice president of the American Telephone and Telegraph Company, in charge of business research and Bell System revenue requirements studies. Mr. Wilson was previously assistant vice president of A. T. & T. in charge of the commercial division. Like other Bell System executives, he rose from the ranks. He was graduated from Rose Polytechnic Institute, Terre Haute, Indiana, in 1922.

Giles Joins Atlas

Atlas Lumnite Cement Co., U. S. Steel Corp. subsidiary, has announced the appointment of Roy T. Giles, Service Director, as Sales Manager. Mr. Giles joined the North Carolina Highway organization in 1921. He was first materials engineer and later testing engineer during the large road building campaign in that state.

Norton Bonded Diamond Wheel

The development of a vitrified bonded diamond wheel is announced by Norton Company, Worcester, Mass. This new wheel supplements the resinoid bonded diamond wheel introduced to industry by Norton in 1934 and the metal bonded diamond wheel which they introduced in 1939. These three types of Norton diamond wheels make it possible to meet the requirements of all kinds of carbide tool grinding as well as the grinding of glass, quartz crystals, porcelain and similar materials.

An outstanding feature of the vitrified bonded diamond wheel, and also a vitrified bonded diamond hand hone, is the combination



tion of a fast cutting action with extremely long life. The ability of the Norton vitrified bonded diamond wheel to hold a sharp corner and postpone the development of radii much longer than resinoid bonded wheels makes it advantageous for chip breaker grinding.

Another important advantage is the ability of the Norton vitrified bonded diamond wheel to grind shank steel with little tendency to glaze or load. This characteristic is especially valuable where a relatively large area of steel must be ground with the carbide tip as in the case of cutter blades.

Grotts Heads Porter Research

H. K. Porter Company, Inc., of Pittsburgh, Pa., has announced the appointment of Fred Grotts, president of its subsidiary, Fort Pitt Steel Casting Co., to a newly created position, in addition to his present one, as Director of Research and Metallurgy for all Porter plants.

In this new capacity, Mr. Grotts will have charge of problems relating to materials of all types, metallurgy, and practices on present products, T. M. Evans, president of Porter, said. Mr. Grotts, a national authority on heat treatment of cast steel and cast iron will establish a technical and engineering advisory service for customers on materials and specifications, and direct new product developments.

Cole Becomes Monsanto Director

Robert R. Cole, vice president of Monsanto Chemical Co., and general manager of the phosphate division, has been elected a member of the Board of Directors. Mr. Cole fills the place on the board left vacant by the recent death of John C. Brooks, vice president and general manager of the company's plastics division.

Burch Retires From N & W.

J. J. Burch, general foreman of the car department in the Norfolk and Western's Roanoke Shops, retired on October 1, according to an announcement at the railway's general offices. Mr. Burch entered N. & W.'s service in 1903.

Kaydon Ships Special Bearings

Kaydon Engineering Corp., of Muskegon, Mich., has made its first shipment of spherical roller bearings to meet emergency requirements for U. S. Navy LVT equipment. Previously, such bearings were made by only one company. The award of the contract for these bearings was received February 25, 1944, and necessitated a complete tooling and facilities program by the Kaydon Corporation to meet the emergency.

Recently, the Kaydon Engineering Corp., organized in 1941, received the third star for their Army-Navy "E" Flag, which represents the fourth award to the corporation for excellence in producing large precision bearings for gun mounts.

Atlas Cement Appointments

Universal Atlas Cement Co., U. S. Steel Corp. subsidiary, has announced the appointment of Edward J. Head, Assistant Sales Manager, as Sales Manager in New York, and the appointment of Foster A. Hagan as Assistant Sales Manager, New York. Mr. Head has had wide experience in the cement industry. Not long after his discharge from the Army in World War I he served as special representative for Universal Atlas in the southeastern states with headquarters at Birmingham, and subsequently in the same capacity at Philadelphia.

Mr. Hagan, born in New York City, has lived there since. In 1924 he entered the cement industry as a salesman for the Lehigh Portland Cement Co., coming to Universal Atlas in 1942.

Milcor Steel Acquires Osborn Company

In line with plans for expanded operation after the war, the Milcor Steel Co., Milwaukee (subsidiary of Inland Steel, Chicago) has purchased The J. M. & L. A. Osborn Co., of Cleveland. The Osborn Company is one of the country's pioneer manufacturers and distributors of sheet metal products, having been established in 1850. It operates branches in Buffalo, Detroit and Cincinnati. In serving the construction industry with sheet metal building materials its lines closely parallel those of Milcor.

Plans are to continue operations as The J. M. & L. A. Osborn Co., Division of Milcor Steel, with the present Osborn organization remaining intact. It will later be supplemented by Milcor people to handle those Milcor products not carried by Osborn.

South's Construction By Types

	September, 1944 Contracts Awarded	September, 1944 Contracts to be Awarded	Contracts Awarded First Nine Months 1944	Contracts Awarded First Nine Months 1943
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$ 1,138,000	\$ 2,318,000	\$ 4,560,000	\$ 1,207,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	539,000	466,000	2,666,000	1,707,000
Residential (Apartments, Hotels, Dwellings)	4,356,000	2,615,000	39,123,000	52,380,000
Office	44,000	860,000	283,000	138,000
	\$ 6,077,000	\$ 6,259,000	\$ 46,632,000	\$ 55,432,000
INDUSTRIAL	\$19,600,000	\$ 9,663,000	\$154,039,000	\$ 238,945,000
PUBLIC BUILDING				
City, County, State, Federal	\$15,588,000	\$ 26,328,000	\$122,144,000	\$ 353,497,000
Housing	535,000	387,000	43,634,000	165,267,000
Schools	3,420,000	10,211,000	16,179,000	12,317,000
	\$19,543,000	\$ 36,926,000	\$181,957,000	\$ 531,081,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$17,104,000	\$ 15,263,000	\$144,042,000	\$ 221,374,000
Federal, County, Municipal Electric Sewers and Waterworks	3,693,000	19,471,000	24,066,000	29,593,000
	\$20,797,000	\$ 24,774,000	\$169,131,000	\$ 256,053,000
ROADS, STREETS AND BRIDGES	\$8,385,000	\$ 18,881,000	\$ 73,413,000	\$ 103,675,000
TOTAL	\$74,402,000	\$106,503,000	\$625,172,000	\$1,185,186,000

Higher Southern Contracts Recorded in September

TOTALING \$74,402,000 in September, Southern construction rose more than sixteen per cent above the level of the preceding month and was within three per cent of equalling the total for September, 1943, one of the four years of abnormal activity due to defense preparation and war emergency. The nine month total is \$625,172,000.

The current September total was about five and one-half million dollars above the monthly average for the preceding eight months and was the second highest monthly total, being surpassed only by the \$83,064,000 of July.

Gains responsible for the September increase occurred in three of the five general classes of construction. Private building was 139 per cent above August. The increase in industrial contracts was

more than 36 per cent; of engineering construction, over 28 per cent.

Engineering construction headed the list in actual money value with a total of \$20,797,000. Industrial construction followed with a total of \$19,600,000, rank-

by

Samuel A. Lauver

News Editor

South's Construction By States

	September, 1944 Contracts Awarded	September, 1944 Contracts to be Awarded	Contracts Awarded First Nine Months 1944	Contracts Awarded First Nine Months 1943
Alabama	\$ 2,450,000	\$ 2,079,000	\$ 29,157,000	\$ 43,691,000
Arkansas	2,623,000	3,111,000	6,861,000	30,396,000
Dist. of Col.	1,154,000	4,740,000	16,357,000	12,430,000
Florida	2,255,000	18,620,000	67,971,000	155,773,000
Georgia	2,743,000	4,830,000	35,431,000	80,134,000
Kentucky	951,000	825,000	19,427,000	30,468,000
Louisiana	4,541,000	3,896,000	49,028,000	66,978,000
Maryland	4,236,000	5,226,000	51,287,000	85,190,000
Mississippi	1,841,000	1,809,000	18,597,000	32,506,000
Missouri	6,168,000	2,438,000	41,204,000	19,725,000
N. Carolina	3,568,000	4,037,000	21,300,000	50,472,000
Oklahoma	1,236,000	4,240,000	19,792,000	85,437,000
S. Carolina	1,219,000	1,255,000	18,492,000	45,048,000
Tennessee	2,520,000	6,206,000	21,596,000	86,360,000
Texas	25,785,000	28,374,000	121,004,000	291,439,000
Virginia	7,119,000	14,237,000	70,635,000	63,903,000
W. Virginia	3,991,000	578,000	17,125,000	9,436,000
TOTAL	\$74,402,000	\$106,503,000	\$625,172,000	\$1,185,186,000

ing slightly ahead of the \$19,543,000 of public building, one of the two classifications that showed no increase. Road contracts amounted to \$8,385,000 and private building, \$6,077,000.

Acceleration in engineering construction was due not only to the continued activity in airfield construction, but also to substantial revival of flood control and harbor work. A channel project at Galveston, Texas, is an example, with proposals ranging up to \$4,800,000 for dredging a channel approximately 19,800 feet long.

The industrial construction total embraced a variety of enterprises. Texas, Missouri and Tennessee were at the top of the list, with totals of \$11,948,000, \$2,156,000 and \$1,480,000, respectively. Widely diversified Texas industrial projects included a \$2,500,000 power plant and a large shell loading plant expansion. The major contribution to the Missouri total was a \$1,500,000 car foundry expansion at St. Charles.

Public building's \$19,543,000 September total ranks sixth among the months of the year. Federal building, mostly military, was at the highest point of the year, but a drastic drop in public housing, lowered the aggregate of the public building total. Publicly financed housing in the South decreased in September to about one-fifth of the figure for the preceding month. School projects remained comparatively stable.

Road contracts totaling \$8,385,000 during September occupied an in-between position as compared with other elapsed months of 1944. The highest total for this type of work was the \$12,331,000 registered in June; the lowest, the \$3,203,000 of March. The monthly average for southern road construction so far this year is \$8,159,000, of the comparable period of last year \$11,518,000.

Prospects for a higher rate of highway activity assume a rosier hue as the European military campaign progresses, and the necessity grows for reconstructing deteriorating highways and providing new routes before resumption of automobile production starts. Responsibility for the condition of the nation's highway systems rests partly with the War Production Board, whose restrictions have helped throttle activity in this field.

For the past fifteen years highway construction has not kept pace with traffic needs, according to high officials in this field. Obsolescence and depreciation have been accentuated by war, when a large segment of the country's population has been engaged in essential production, thus making home front roads and streets highly important as arteries for transporting supplies, materials and men.

Southern private building's \$6,077,000 September total was the third highest for such work this year. The monthly average of 1944 is \$5,181,000; that for the first nine months of 1943, \$6,115,000. Circumscribed by stringent federal regulation, this field was reported to be in line for more leniency, but War Production Board officials denied such action is pending. Exact words of the denial were: "No facts available at this time on re-

(Continued on page 78)

Ingalls, Verona, Gets "E"

The Ingalls Iron Works Co. plant at Verona, Pa., which has built knocked-down barges for the Army, designed and produced huge dirigible hangar doors for the Navy and supplied fabricated steel for destroyer-escorts, landing ships, 15,000-ton attack transports, etc., recently received the coveted Army-Navy "E" award. R. I. Ingalls, Jr., president of the company, which has headquarters in Birmingham, Ala., received the coveted pennant from Lt. Col. Ralph Henry Sartor, transportation officer of the Army's Third Transportation Zone.

New Metal Finish Stripper

A "non-creeping" liquid that quickly strips finishes from metal has been developed by Fidelity Chemical Products Corp., Newark, N. J. The liquid, marketed as Fidelity Stripper No. 306, was developed especially for rapid removal of insulating coatings from wires, and baked enamels from objects which cannot or should not be submerged. The stripper is applied by brush at room temperature, and, usually in less than a minute, causes the finish to puff and leave the metal. The metal is then wiped clean, and since there is no residue or corrosive action, the stripped part may be soldered or refinished without any after treatment, according to the manufacturer. The liquid does not run, so that stripping may be limited to a specific section of coated surface.

New Barrett Plant

A modern tar distillation plant is to be built at Ironton, Ohio, by The Barrett Division, Allied Chemical & Dye Corp., according to a recent announcement. Situated on the Ohio River 14 miles northwest of Ashland, Ky., Ironton has been selected as the site for this new plant because of availability of required raw materials, and because of its central location and excellent transportation facilities. Ironton is served by the Detroit, Toledo & Ironton Railway, Chesapeake & Ohio Railroad, and the Norfolk & Western Railway.

A.S.T.E Magazine

"The Tool Engineer," official magazine of the American Society of Tool Engineers, will be published by the Society commencing with the February, 1945, issue, according to an announcement made by Adrian L. Potter, Executive Secretary. For the past ten years, "The Tool Engineer" has been published by an independent contractor. Membership of the American Society of Tool Engineers comprises more than 16,000 of the leading mechanical and industrial executives in the United States and Canada.

Pittsburgh-Merco Consolidates Columbia, Atlanta Offices

Consolidation of the Columbia, South Carolina, and Atlanta, Georgia, offices of Pittsburgh Equitable Meter Company - Merco Nordstrom Valve Company was announced recently, coincident to the retirement of F. G. Swaffield, district manager of the firm's Columbia office. Announcement of the change was made by A. J. Kerr, general sales manager of the company. In assuming control of the Columbia office territory, C. C. Moore, manager of the Atlanta district office, now directs field sales in the entire southeast section of the United States. In this territory are the states of Florida, Georgia, Alabama, Mississippi, Tennessee, North and South Carolina, Virginia and most of Kentucky.



C. C. Moore



F. G. Swaffield

Oklahoma Asphalt Deposits

Publication of a new geologic and topographic map of the asphaltic limestone deposits near Dougherty, Murray County, Okla., is announced by the Geological Survey, Department of the Interior. The map, which is on a scale of 300 feet to the inch, is a collateral part of the program of oil and gas investigations. It shows the area from which asphaltic material is produced. The map, entitled "Geologic Map of the Dougherty asphalt area, Murray County, Oklahoma," has been issued as Preliminary Map 15 in the Oil and Gas Investigations series. Copies may be purchased from the Director of the Geological Survey, Washington 25, D. C., at 25 cents each.

Geologic Map, Independence County, Arkansas

The interpretation of exploratory wells drilled for oil or gas in the Boston Mountains region in northwestern Arkansas will be aided by the results of a detailed stratigraphic study of the rocks of the Batesville district, Independence County, Ark., publication of which has been announced today by the Director of the Geological Survey, Department of the Interior.

The new map of the Batesville district, at the east end of the Boston Mountains, shows the geologic formations exposed in an area of almost 60 square miles lying both north and south of the White River.

The map, entitled "Geologic map and structure sections of the Batesville district, Independence County, Arkansas" has been issued as Preliminary Map 12 of the Oil and Gas Investigations series. Copies may be purchased from the Director of the Geological Survey, Washington 25, D. C., at 40 cents each.

Sulfur Production

Production of native sulfur has increased steadily since January 1944, and in August reached the highest total attained since July 1942 according to figures released by the U. S. Bureau of Mines. Output in August was 47 per cent greater than in August 1943. Although mine shipments and apparent sales show that consumption is at an all-time high level, in August production finally overtook sales, after 18 months of steady decline, producers' stocks increased 6,663 long tons.

Green in Charge of Mt. Vernon Sales

Mt. Vernon Car Manufacturing Co., Mt. Vernon, Ill., a division of H. K. Porter Co., Inc., of Pittsburgh, Pa., has announced the appointment of George Green to the position of Vice President in Charge of Sales. Mr. Green in the past year served as Railway Sales Manager of Elastic Stop Nut Co. For the previous ten years he was associated with Union Asbestos & Rubber Co., Chicago, Ill.

Ammonia Booklets

Pennsylvania Salt Mfg. Co., 1,000 Widener Bldg., Philadelphia 7, Pa., offer two new pamphlets, "Refrigeration With Ammonia," and "Heat Treating With Ammonia." Replete with technical data and details of equipment for the successful use of ammonia in the respective fields of application, they will be of interest to operating engineers and newcomers to the engine room. Obtainable from the home office or any of the company's branches.

Greenway Joins Porter

William W. Greenway has been appointed Production Engineer for Mt. Vernon Car Manufacturing Co. and J. P. Devine Manufacturing Co., divisions of H. K. Porter Co., Inc., of Pittsburgh, Pa. Prior to coming with these Porter companies, Mr. Greenway had been associated with Austin Western Co. as a production specialist.

Savannah and Opportunities

"Savannah, City of Opportunity," a 48-page survey of the industrial and business facilities in Savannah, Ga., has been prepared by the Port Authority of Sa-

vannah and is available to interested executives on direct request to the Authority.

Entirely factual, there is nothing of the "booster" type reading found in so many publications of its nature. Instead, there is an orderly assembly of information dealing with available raw materials, power supply, labor, finance, taxes, transportation and other data that will enable the industrialist, business man or manufacturer to decide if he can profitably locate in Georgia's principal port city.

Newport News Yard to Build Giant Turbine Generators for Russia

The Newport News (Va.) Shipbuilding and Dry Dock Company has received an award to build nine 100,000 horsepower hydro-electric turbine generators for the Dnieperstrol plant in the Soviet Union. These machines will replace the famed installations put into operation in 1933, and destroyed by the Reds when they retreated before the Germans in 1941. The new equipment will have at least 15 per cent greater output than the original installation and will require at least four years to build. War Production Board approved the manufacture and states the machinery will not be provided by Lend-Lease, but will be financed by the U. S. S. R.

TRADE LITERATURE

METAL CONVEYOR BELTS

Catalog 3 of the Cyclone Fence Division, American Steel and Wire Co., Waukegan, Ill., now ready, lists the company's complete line of metal conveyor belts for all purposes. Profusely illustrated, the booklet shows sizes of meshes available and gives many views of practical applications of metal belts. Engineering and other data useful to the plant manager are included as well as forms for submitting conveyor belt problems to the company. Address direct, or any branch office for copy.

WELDING MANUAL

With the title of "Working Principles of Electric Arc Welding," the condensed manual recently published by Harnischfeger Corp., Milwaukee, Wis., gives to its readers in sixty-odd pages a wealth of authentic information on the subject. Compiled by P&H engineers with the cooperation of the American Welding Society and other technical groups including leading users of welding, the book is written for welding operators as well as for designing engineers concerned directly or indirectly with fabrication of metal products.

Harnischfeger Corp. manufactures the complete P&H lines of AC and DC welders and welding electrodes, and positioners. Other P&H products are all-welded excavators and crawler cranes, overhead cranes, hoists, and motors. Copies of "Working Principles of Electric Arc Welding" are available at \$1.00 each while the supply lasts. Address Welding Division, Harnischfeger Corporation, Milwaukee 14, Wis.

MONTHLY AVAILABILITY LISTS

Walker-Jimleson, radio and electronic distributors, 311 S. Western Ave., Chicago, publish each month an Industrial Availability Booklet showing items available on priority for immediate delivery from stock. Walker-Jimleson offers to send this monthly free to engineers or purchasing agents requesting it.

Business Briefs

GENERAL. Wind-blown straw: newly-formed "Congress for the Presentation of Products of Tomorrow" sponsors (17 days starting March 1) first national showing of new peacetime products; expects big to-do, has leased Chicago stadium.

More peacetime customers: in '43 U. S. had a natural increase of 1,475,173 souls, most numerous for 10 years; over-all birth rate was 21.9 per 1,000, death rate was 10.9; New Mexico was most fertile (29.4) births per 1,000, New Jersey most sterile (19.1), Pennsylvania woman had 20th child, said, "I've done my share."

'42 prices, says OPA, will be par for civilian durable goods after V-E Day.

Also, OPA has new tome giving Gordian Knot of price controls the old unraveling, they say costs \$1 from Government Printing Office, Washington.

In September (for first time since March) living costs of wage earners and lower-paid electrical workers declined on nationwide average.

Commercial highlights: WPB (stern Opinion A-117) says gals' red slacks okay, no greater industrial hazard than, say, chartreuse ones; tattoo Rembrandts busy: 1 out of 15 women tattooed; post-war pretzels to be refined, will be, says profound National Pretzels Bakers' Institute, "petite . . . with refinement in every motion;" Maine Izaak Walton snagged salmon with \$5 bill in stomach; Cincinnati peddling its air raid sirens (10 big, 10 little ones; big ones cost \$3,750 each, used very little).

Federal civilian employee pay roster less lengthy in August (first drop this year); still 2,908,557 on tax-paid payroll.

New factory workers (in August) outnumbered by quites; for each 1,000 workers 74 no longer were working, 62 new ones hired; over \$2 billions were paid American workers last year in overtime premium pay; 4 million plus workers got less than 40c an hour, another 3 million drew 40-50c hourly; Federal statisticians who ponder such things say total manufacturing wages in full peacetime employment will be a third less than current \$32 billions with "usual depressing effect on agricultural prices, farm income and distributive profits."

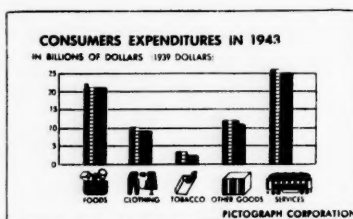
September Government war spending under \$7 billions (first time since December); net Federal receipts in September (an income tax month) were \$5,925,736,641, in August were \$2,568,320,811; on

September 30 public debt was \$211,063,598,633, about \$120 billions in extra red ink since same date in '42.

Output of American industry in August increased for first time this year; moved up 3% over July (Federal Reserve Board's unadjusted index); stood at 235 (1935-39 equals 100).

Department stores have dollar volume around 7% over '43, look for heavy Xmas business; Sears Roebuck punched cash registers for \$89,662,226 in September, had summed-up sales (February thru September) 13.4% better than same period last year.

Employers giving workers time off to vote, says WLB, without docking pay.



will not be charged with granting prohibited wage increases.

Commerce Secretary Jones asked (378 telegrams) operators of 568 war plants belonging to Defense Plant Corporation if they wanted to buy or lease the plants; all but 7 replied; 252 operators (325 plants) said yes, 39 operators (55 plants) said no, 77 operators (120 plants) still chewing cud.

What it's worth: Roy Blough, Director of Treasury's Division of Tax Research, opines excess-profits tax (on corporations) on way out "... by erasure rather than by erosion."

MANUFACTURING. Steel salesmen are reported to be out and about, beating the bushes for business (civilian).

The steel products industry will have 16,085,000 tons (WPB estimate) for 4th quarter use, had 15,900,000 tons in just-past 3rd quarter; 185,000 ton increase due to new facilities which still lack manpower for full capacity.

Just added up: August bookings of structural steel for bridges and buildings totaled 40,229 tons, were 77,371 tons in July and 37,563 tons for August of '43; August steel shipments for same use were 44,118 tons, were 50,229 in same month last year; reported tonnage available on Sept. 1 for future fabrication was 130,376 tons. (American Institute of Steel Construction say-so).

At mid-October steel ingot production was holding own, plate production easing off, supply of galvanized sheets tightening, buying and selling of scrap steel meager; cutbacks in landing mat program and decline in new orders reduced unfilled order backlogs.

Job to be done: OPA lookers-back say these items, among others, have been choked off from civilian production since early 1942: 10,980,000 automobiles, 6,042,000 washing machines, 6,351,000 vacuum cleaners, 16,755,000 electric irons, 7,923,000

toasters, 41,100,000 radios, 82,380,000 clocks and watches, 10,400,000 furnaces and heaters, 14,010,000 stoves and ranges; said nothing about shears to prune taxes.

Pulpwood receipts, including imports, (authority: WPB) for August last were about 1,705,000 cords, level of receipts at mills being around 12% over August, '43; 11% above same month in '42; August receipts of domestic pulpwood were 1,502,000 cords, 17% better than last year.

Southern pulp mill receipts in August of rough domestic pulpwood were nearly half of nation's total (704,000 cords); WPB has allocated 106,547 tons of wood pulp for 4th quarter making of rayon, cellophane, plastics, molded pulp products and miscellaneous products, about 5,000 tons more than preceding quarter.

(See paper story on Page 26).

Xmas will be a trifle less colorful; gift wrapping paper, boxes and accessories to be short; industry is limited to 65% of '42's raw materials; greeting card makers limited to 90%, but there will be about enough to go around.

A WLB panel recently said New England and Southern textile mill wages were sub-standard, brought forth heated rebuttal; complicated argument still goes on.

Long-handled drawers: Government has bought 30,000,000 dozens of underwear (not all long-handled, though) since war began.

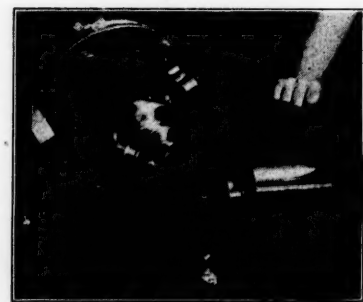
Another "authoritative" guess: textile output will slump for 3 first post-war years, then will gradually rise for 4-6 years (guesser: Moore & Co.); taking '43's gross sales as basic 100 volume at '44's end to be 92.2 at end of '45 will be 97, and will pole vault to 112.2 at '47's New Year's Eve.

In ante-bellum days 650,000,000 yards a year of heavy cotton goods often went into bags; war needs inflated demands to 1,500,000,000 yards; government bought \$50,000,000 yards of burlap in India.

Textile Research Institute to hold its annual meeting at New York's Roosevelt Hotel Nov. 10.

The hardwood industry had passed its peak production at mid-September, could not turn out another splinter, now must beat '44's estimated production by 7%; output in '44 will reach 7,500,000,000 board feet, 75% over '40, the most since '27, production in '45 might reach 8 billion board feet, new kiln drying methods offsetting lack of reserves.

OPA puts on fright wig: furniture makers saw prison bars before their eyes when OPA opined catalog prices could



Business Briefs

not be used as "offering prices" (as makers had been doing); day or so later OPA said it was okay; expensive chair; seat on N. Y. Stock Exchange quoted at \$75,000, had 1 taker.

WPB lifts ban of making certain commercial food service equipment items (barbecue machines, dish warmers, potato chip fryers, warming ovens, peanut roasters, etc.), also erased distribution controls.

Shoe rationing goes on; only 170,717,000 pairs of rationed-type shoes in retail and wholesale stocks on July 31, should be 183 million pairs (OCR figures) to provide an adequate working inventory.

Synthetic rubber output this year should reach 775,000 tons, eliminating rubber shortage hazard; capacity of present synthetic set-up is about 1,100,000 tons a year; Firestone has a plastic tire (that's right, plastic) designed to overcome heat, "the number one enemy of long wear," will, so they say, take twice the heat natural rubber will, in general a better all-around actor.

Nation's distilleries, having a month's holiday from making of industrial alcohol, produced around 50 million gallons of beverage spirits in August (whisky, 13,584,910 gallons; rum, 201,705 gallons; gin, 897,921 gallons, brandy, 467,563 gallons).

MINERALS. Gasoline, says a respected chemical engineer, could be made from natural gas for 6c a gallon, from coal for 14.7 cents; to make one-tenth the 600 million barrels of gasoline used in '40 would take 719 billion cubic feet of natural gas, 27% of all marketed in '40; to make same one-tenth from coal would take 48 million tons, 8.3% of '42's production.

(See story, Page 22).

Federal Power Commission to investigate the nation's natural gas reserves, to determine their probable life, future utilization; FPC says certain interests (coal, railroad, labor, others) want natural gas use limited; also says natural gas producers want to be left alone.

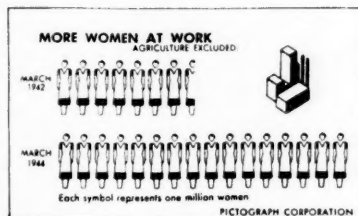
Ickes again: says bituminous coal production during present coal year will be 16 million tons under estimated needs; to meet over-all demands, bituminous diggings from last Sept. 23 to next March 31, must be upped 344,000 tons a week above the average weekly production (11,804,000 tons) since last April Fool's Day.

Soft coal stocks on hand Sept. 1 were 11,487,000 tons less than on same day last year; mining of hard coal stepped up considerably, still not enough to meet needs.

Production problems: Nazi finished oil production cut 77% below its May potential by blockbusters; new super-secret "super-fuel" to be used against Japs; U. S. now making 100-octane aviation gasoline in excess of needs for combat and training purposes.

\$352,000,000 will be spent, says Deputy Petroleum Administrator Davies, by the petroleum industry on refining facilities (\$176,789,385 for domestic, \$176,155,000 for foreign developments) as soon as materials are to be had.

U. S. crude oil production jumped 24,300 barrels daily (to 4,721,650 barrels) in week



ended October 14; Texas flow went up merest trifle, Louisiana flow went down same amount; stocks of domestic and foreign crude were 225,000,000 barrels on Oct. 7, an increase of 110,000 barrels for the week (domestic crude fell off 354,000 barrels, foreign crude increased 464,000); stocks of gas oil and distillate fuel oil jumped 1,257,000 barrels during week ended October 14, reached 47,335,000 barrels.

Of 108 foreign corporations chartered for business in Mississippi during last 15 months, 42 had fingers in the oil business.

AGRICULTURE. Total farm mortgage debt of the country has been cut about \$1 billion since '40; repayments of FCA loans summed up to \$400 millions plus (for year ended June 30); repayments were 4 times amount of new loans.

U. S. farm real estate value per acre on March 1 was 35.7% above pre-war level of same date in '39; deep thinkers do not like it—too much like inflationary ascent of World War One; on March 1, '20, farm real estate value reached a peak 65% above pre-war levels, by '33 these values had depressed to a bottom 29.1% below levels prevailing prior to 1914.

Someone finally counted them: U. S. hens and pullets laid 4,631,000,000 eggs (new record) during last July, total '44 yield up to August 1 was 40,293,000,000 eggs.

Estimated U. S. turkey crop this year is 35,500,000, the '36-40 average plus 20%.

History making: Biggest-of-all-time onion crop now getting to market, storage space cannot handle surplus, so onions are named a "Victory Food Selection."

Oklahoma's broomcorn yield will run about 18,800 tons this year, almost one-third of nation's total.

Agriculture Department says more American people are buying farms than

ever before; advises thinking twice before paying more than '37-40 values; and do not expect help from Jeeps, say Canadian experts who tried them; better stick to standard trucks, tractors and even dobbins.

Rate of increase in farm income slowing down; last July's gross gain was 4.4% over July, '43, much smaller than in preceding months; for '44's first 9 months farm income totaled \$13 800 000,000, a gain of 6% over same period last year.

Average prices for farm products in primary markets dropped 0.5% during week ended Oct. 14, was 103.8% of 1926 average, about 1% higher than mid-October, '43.

All WFA rationing and distribution control of farm machinery and equipment (except corn pickers) ended; production now exceeds pre-war levels but still does not meet demand; corn pickers being made in twice pre-war amounts, but clamor for them makes WFA retain reins.

An Oklahoma farmer has mated okra with cotton, making, somehow, a drought-resistant cotton; did not say how he managed the romance.

Farmers holdings of cash, bank deposits and savings bonds have soared \$14 billions during the war period.

11 million pairs of hands were engaged in agriculture in June, '40, in June, this year, were only 9.6 million.

One Clarksdale, Miss., operator with new cotton machinery does the work of 40 field hands and can, it is said, produce cotton in the bale for less than 10 cents a lb.

CCC, says WFA, will pay (gross weight at Memphis) 21.95c per pound for cotton (15/16-inch staple) in Nov., 22c in Dec., 22.05c in Jan., and 22.10c in Feb.; will sell for 22.45c in Nov., 22.5c in Dec., 22.55c in Jan., and 22.6c in Feb.; these prices to stand unless spot market cotton prices should "average above parity for a period of time sufficient to raise a question as to the adequacy of manufacturing margins under ceiling prices that are being computed for major cotton textiles on the basis of parity prices for cotton;" you figure it out.

Latest guess at hand: this year's cotton growth will total about 10,903,000 bales (480 pounds net weight each); another estimator (the Government) on Sept. 1 said it would be 11,483,000 bales; indicated yield per acre is about 260 lbs.; and one group of erudites say cotton export prices must be cut deeply if U. S. cotton is to compete successfully in world markets; prices here are 50% above prices for comparable foreign cotton; only for tight shipping situation and import quotas "foreign cotton would displace American cotton even in U. S. mills."

New cotton-picking champ, Virgil Mote, Black Oak, Ark., snatched 102.6 lbs. of clean cotton in one and one-half hours, was busy fellow.

Over '44's 1st 9 months, N. C. bought most fertilizer (1,089,719 tons) of Southern States, Ga., was next.

Meat packers under Federal inspection must now set aside 80% of all canner and cutter beef for government procurement; for rest of year, says Agriculture Department, available meat will be gener-

(Continued on page 60)



Business Briefs

(Continued from page 59)

ally lower in quantity and quality. The mountain state's (W. Va.) livestock industry now has annual income of around \$20 millions, has 700,000 head of beef cattle worth \$60 millions (including 960 Hereford, Angus and Shorthorn purebred herds); state has 351 slaughtering plants under WFA permits.

Venezuela agriculture officials have been buying bulls in Oklahoma, say Guernseys do well in their country's high valleys, and Jersey and Brown Swiss cattle thrive lower down.

Nanny gives Bossy competition: 13-month-old Toggenburg doe (named Sky Baby, daughter of Crystal Helen, former world's champ) has set a new goat milk record of 1,573 pounds of milk and 49.342 lbs. of butter fat in 10 months.

More guesses: lumber production in August was 3,208,339,000 board feet; for 1st 8 months of '44 was 22,406,421,000 board feet, 2.4% under yield of same months last year; in August, softwood production was three times that of hardwoods.

Central Procuring Agency has bought (for the services) 18 billion board feet of lumber between Sept. 1, '40 and same date this year, 12 billion of it in last half of the period; in all of World War One Federal use of lumber was only 6,349,344,000 feet.

"Due to armed service purchases," cigarette shortage will continue for "at least two or three months."

Bureau of Crops took look-see, said 478,095,000 lbs. of tobacco would go to market in '44; total "disappearance" for year ended Sept. 30 was figured at 431 million lbs.; dealers and manufacturers' stocks of burley on Oct. 1 were around 645 million lbs., about enough for 18 months.

Florida citrus shippers sent out 153,007 boxes (that makes 382.5 carloads) in the week of Sept. 24-29; grapefruit were 10 times oranges; Florida's citrus canneries put up 30,973,000 cases of juice and segments during the last season (worth \$82 millions); used enough cans to reach around the world twice.

Florida citrus growers want price relief; for state as whole, the recent hurricane destroyed 10-25% of the tangerines and oranges, 35-50% of grapefruit; heaviest producing districts were hit hardest, Polk and Orange Counties losing 60-75% of their grapefruit, 15-30% of early oranges.

Fibrous ramie is being set out in big way on the fringe of Everglades, is expected to be the "beginning of . . . a very substantial agro-industrial project."

CONSTRUCTION. (See story on Page 51.)

Post-war construction plans under way or completed by Sept. 30 summed up to \$4,438,190,000 (so says one source), a gain of \$2,253,113,000 (103%) in preceding 6 months; but is adding up too slow if the nation is to have the \$15 billions in post-war projects needed for a healthy resumption of construction activity.

Another figurer says \$10,500,000,000 of construction projects merely awaits materials and manpower; take your choice.

Britain must build 4 million houses as soon as it can; government wants a half million built within two years after the war ends; will run up quickly a quarter-million prefabricated steel houses (which no one seems to like much); of 12 million separate dwellings in England and Wales a quarter were blitzed, many irreparably.

Upwards of \$86 billions were spent for new construction machinery and equipment from July, '40, to December, '43 (Department of Commerce figures); costs of wartime construction was \$36.5 billions, an annual average of \$10.5 billions, as against \$5.7 billions in the pre-war period and \$10.3 billions in '29; costs of wartime machinery and equipment, non-combat items, was around \$50 billions, an annual average of \$14.3 billions as against \$5.6 billions pre-war and \$7.3 billions in '29.

War-time construction increased only 80% over peace-time building, while outlay for machinery and equipment jumped 150%; public funds took care of 60% of total capital expenditures, paid for about 20% in pre-war days.

Site for sale: Parliament wanted some land in London's Strand for civic improvements, had hair raised by asking price (one million Pounds Sterling per acre!)

Mohammed unto mountain: NHA has moved or is moving 8,400 public housing units from war production centers to sections with shortages; moved some 900 miles.

WPB and NHA jointly relaxed restrictions on use of materials to construct

houses approaching pre-war standards (revision of Schedules I and II, limited preference rating order P-55-C of WPB); also, WPB has revoked L-196 which controlled the sale of certain critical types of used construction machinery.

Construction material costs are, so 'tis said, 20% lower than in May, '20; but labor costs are up 40%.

That booming is not war closing in, it's Florida real estate; everyone swears they loathe booms; the booming booms on.

FINANCE-TAXATION.

N. Y.'s large Guaranty Trust says postwar credit needs, whatever they may be, can be met without difficulty, adds parenthetically. "When the war ends, Federal debt will probably be almost twice as large as all other debt—State, municipal and private—combined," also said, "It appears equally probable . . . that the public policy will aim at an abundant supply of credit and a low level of interest rates."

Bad news: tax bills of war contractors are larger by Treasury Department's new ruling (earnings from settlement of canceled government contracts will be treated as income in the year of termination); also makes profits vulnerable to recapture under the renegotiation law.

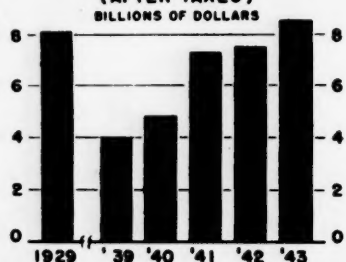
Pockets jingling louder: three main mints have made more than 3 billion coins within the past year, 1 billion more than any previous year's output; about \$7 billions worth of those pesky steel pennies were put into circulation before minting was stopped Jan. 1.

Total assets of all the country's commercial and savings banks set a new record (up 19%) in the fiscal year ended last June 30; assets of 14,598 banks were \$139,560,000,000, a gain for the year of \$22,308,000,000; total deposits went up to \$129,367,000,000, also a record; demand deposits were \$58,421,000,000, time deposits \$33,441,000,000; loans and discounts, \$25,504,000,000.

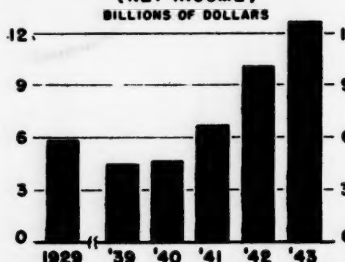
Income taxes are heaviest kickers-in to State revenues (19% of tax total); revenues from gasoline, usually the most generous contributor, dropped from 30% in '33 to 17% in '44's fiscal period; all 48 states levy alcohol, franchise, gasoline, and motor vehicle taxes; only Nevada has no death duty; only 32 States levy property taxes for State purposes (they produced 19% of State revenues in '31, 7% in '41.)

EARNINGS OF CORPORATIONS, FARMERS AND LABOR

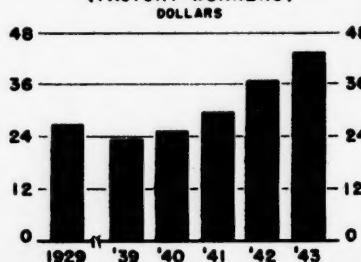
CORPORATE PROFITS (AFTER TAXES)



FARM OPERATORS (NET INCOME)

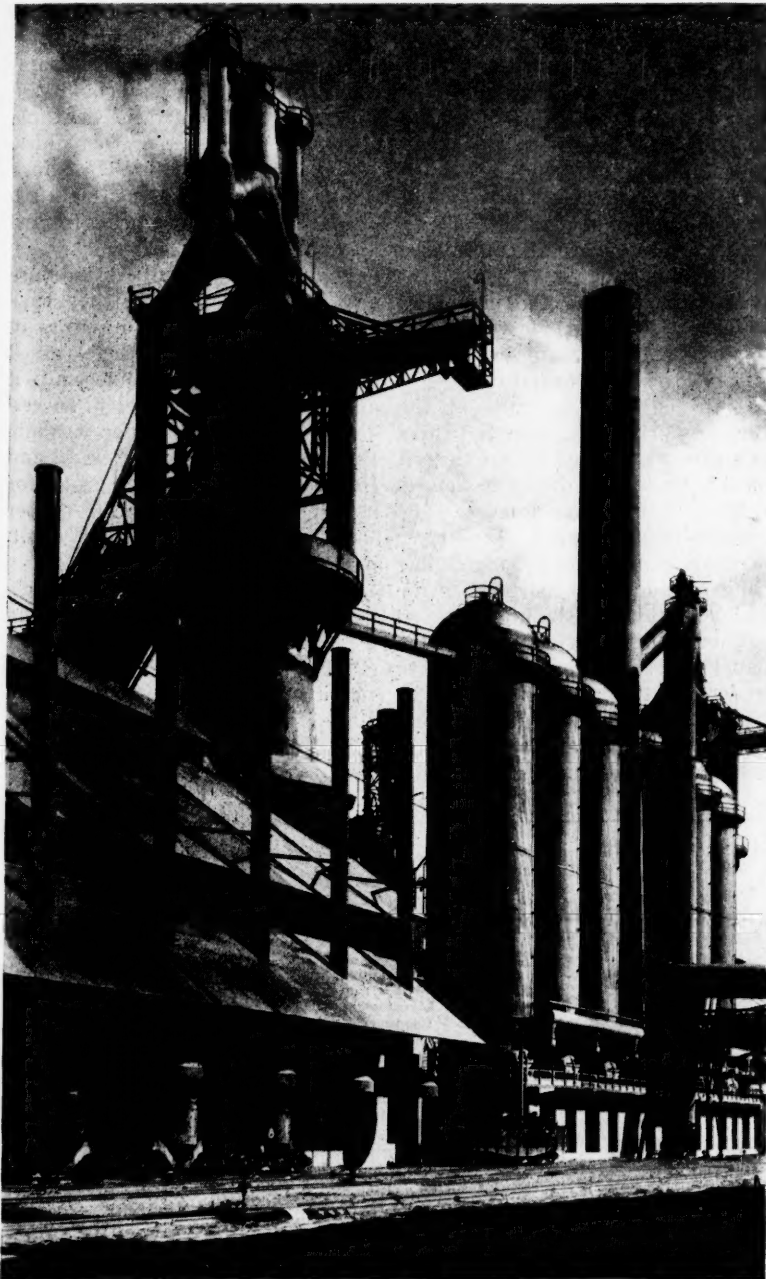


WEEKLY EARNINGS (FACTORY WORKERS)



PIG IRON PRODUCTION

Takes a Jump



THREE blast furnaces, two of which are shown at the left . . . nine open hearth furnaces (each with a capacity of more than 200 tons of steel daily) . . . three dust collectors . . . washers . . . 9-ft. diam. gas mains, etc. . . all are a part of one of the nation's new integrated steel mills.

Furnishing blast furnaces, blast furnace stoves, pressure vessels, and tanks for storing liquids or gases to the nation's industries with the utmost speed is "every day" production at our plants.

Throughout the war years, we have built many LST ships and floating dry docks from steel fabricated in our own shops. Despite this, we have designed and fabricated innumerable units for steel mills, the petroleum industry, chemical and process industries and synthetic rubber plants. Each unit that leaves our plant to fulfill a specific job for industry leaves behind it a contribution to an ever increasing surplus of experience that is available for your future needs. Let us know your requirements. Write our nearest office.



... awarded to
our three plants, three
dry docks and shipyard.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 1 1530 North Fifth Street
Houston 1 5614 Clinton Drive
Tulsa 3 1611 Hunt Building
New York 6 3313-165 Broadway Building
Cleveland 16 2216 Guildhall Building



Chicago 4 2106 McCormick Building
San Francisco 5 1040 Rialto Building
Philadelphia 3 1619-1700 Walnut St. Building
Havana 402 Edificio Abreu
Washington 4 930 F Street, N.W.

Plants in BIRMINGHAM, CHICAGO

and GREENVILLE, PENNSYLVANIA

NOVEMBER NINETEEN FORTY-FOUR

41

Richmond's Business Clinic

ALERT to the necessity for sound business counsel for returning veterans of World War II, and aware of the youth and lack of business experience of many fighting men, the Richmond, Virginia Chamber of Commerce, working with the Committee for Economic Development, has established a Business Clinic to give the veterans counsel and guidance in their problems of readjustment to the world of commerce and industry.

Careful study of the matter of business guidance for the returning veteran has established that about 70 per cent of the officers, up to and including the rank of Major, are under 30 years of age. Most of these men were earning more money and had more responsible positions in the military service than they had had in civilian life. Many of them had gone directly into the service from high school or college and had no actual employment or business experience. Other servicemen, on the contrary, had prewar business experience which had been amplified by their military duties. Finally, of the total group, many of the officers, as well as a number of enlisted men, wanted to go into business for themselves in Richmond after the war.

These findings presented a situation that was both an opportunity and a responsibility—an opportunity to help a number of potential future small businessmen in Richmond and a responsibility, both to the servicemen and to the community, to see that such small new businesses start on a sound basis right from the planning stage.

It was seen that these men, upon demobilization, would first need information and advice as to their general qualifications for going into business; and second—for those who seemed to measure up—actual assistance in obtaining the necessary credit, location, and merchandising aid.

After talking the problem over with the local Veteran's Placement Bureau and the U. S. Employment Service, the Richmond C. E. D. and the Chamber of Commerce set up a "Business Clinic."

The "Clinic" operates as follows:

Whenever demobilized servicemen, calling at either the U. S. Employment Service or Veteran's Placement Bureau, indicate a desire to go into business for themselves, they are referred to the Business Clinic at the Chamber of Commerce. They are also given a small pamphlet to read which consists of (1) twelve very realistic questions which any man thinking of going into business might well ask himself; and (2) ten items of good advice on such matters as sound credit, careful record keeping, etc.

If, after reading the pamphlet, which was prepared by the Chamber of Commerce, the serviceman still believes he has what it takes to go into business, he calls at the Business Clinic where he first talks to a three-man panel of experienced local business men drawn from a revolving group of volunteers. They discuss in detail with the service man his experience, incentives, his choice of a business and some of the problems that will be involved.

Should the interview convince the panel the serviceman is qualified to undertake the business venture he has in mind, or some other business agreed upon, he then meets a second group of businessmen in the special

field which he wishes to enter.

Those who are not considered sufficiently qualified, after the first interview, to undertake a business venture of their own are referred to a file of employment opportunities and manpower requirements maintained by 167 member firms of the Richmond Sales Executive Club, plus other cooperating companies. If possible, the man is placed in a line of work where he can gain additional experience pointing toward his own business later on.

Those who show definite promise and qualifications after they have met with the panel of advisors in their chosen field, and have passed muster with these more specialized advisors, are then referred, successively, to bankers in order to establish the necessary line of credit and to a real estate advisory group for assistance in obtaining the proper location with respect to rent, budget, market and other factors.

The entire procedure of the Richmond Business Clinic is handled in a realistic and progressive manner. Briefly summarized, the Clinic seeks to learn the real qualifications and sincerity of the applicant; gives encouragement, definite working ad-

(Continued on page 87)

Cash Farm Income—All Sources

It took not only subsidies and undemocratic regulations, but WAR to hurl agriculture into a coma of pleasant dreams. Note table below.

	Income From Crops million dollars	Income From Livestock and Products million dollars	Cash Farm Income million dollars	Government Payments million dollars	Total million dollars
1923	4,885	4,878	9,563	.....	9,563
1924	5,415	4,806	10,221	.....	9,563
1924	5,415	4,806	10,221	.....	10,221
1925	5,526	5,469	10,995	.....	10,995
1926	4,889	5,675	10,564	.....	10,564
1927	5,157	5,599	10,756	.....	10,756
1928	5,044	6,028	11,072	.....	11,072
1929	5,125	6,171	11,296	.....	11,296
1930	3,840	5,181	9,021	.....	9,021
1931	2,536	3,835	6,371	.....	6,371
1932	1,997	2,746	4,743	.....	4,743
1933	2,473	2,841	5,314	131	5,445
1934	3,004	3,330	6,334	446	6,780
1935	2,978	4,108	7,086	573	7,659
1936	3,651	4,716	8,367	287	8,654
1937	3,948	4,902	8,850	367	9,217
1938	3,190	4,496	7,686	482	8,168
1939	3,366	4,511	7,877	807	8,684
1940	3,470	4,870	8,340	766	9,106
1941	4,718	6,439	11,157	586	11,743
1942	6,484	8,057	15,441	697	16,138
1943	7,903	11,349	19,252	672	19,924

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4,743
5,445
8,780
7,659
8,654
9,217
8,168
8,684
9,106
1,743
8,138
9,924

FOR



4,300,000 JOBS TO DO TODAY

These are busy days for everybody in the telephone business. About 4,300,000 Toll and Long Distance messages go over the lines in the average business day. (That's in addition to more than 100,000,000 daily local conversations.)

Most of these millions of messages go through all right but sometimes the Long Distance lines to war-busy centers get crowded. Then the Long Distance operator may ask your help by saying - "Please limit your call to 5 minutes."

BELL TELEPHONE SYSTEM



NOVEMBER NINETEEN FORTY-FOUR

63

"DUST BOWL" Now The "BEEF BOWL"

(Continued from page 53)

kept them strong and in good condition, the result of proteins and vitamins in this lime-phosphorus country. It is the same today with cattle.

The old dust bowl is again also an area of golden grain, one of the most extensive wheat producing districts of the Southwest. The 1944 crop totaled well into the millions of bushels, with Woodward county alone producing a 3,000,000 bushel crop. It brought Oklahoma farmers an average of \$1.31 a bushel.

In scope of work in relation to agriculture and livestock the Southern Great Plains Field Station here stands at the top in America. Research is carried on all the time in crop rotation, tillage methods, soil moisture, fruits, vegetables, wind-breaks, ornamentals, grass breeding, revegetation, seed increase, sorghum breeding, small grain improvements, and allied subjects. Its attainments during the past thirty years have placed it in the national spot-light that it deserves because of achievements.

The ranchers and others taking this year's range improvement tour were shown a herd of 454 yearling steers that during the 166 days of the 1944 grazing season had an average weight gain per head of 322.1 pounds. This was even a better record than for the two preceding years. During the 172 grazing season days of 1942 the average gain per head of a similar steer herd was 276 pounds, and during the 174 days of 1943 was 313 pounds. The average gain per head for the three-year period was 303.7 pounds. "This," says Mr. Savage, "indicates the high beef-producing qualities of range grasses in Northwestern Oklahoma. The herds of steers tested were those on all pastures, including six pastures that were over-grazed deliberately for purposes of comparison." The native range is supplemented only with salt.

It will be remembered that each steer is recorded with a number,

corresponding with its brand, thus making it possible to keep accurate records; also that each steer is weighed at the end of each summer or grazing month. Monthly weights are noted in a steer-book, indicating just what progress each is making, whether the steer is grazing on buffalo or some other kind of grass, or even on over-grazed acreage. That is the reason for re-grassing attaining such importance in this area and why so many farmers and ranchmen are doing it. It is also the reason why there are so many of them taking advantage of these annual tours.

In horticultural experiments the Woodward field station seeks to develop vegetables and fruits that will grow profitably within this extensive area. This is well demonstrated in tomatoes alone, in that since 1932 there have been 260 varieties tested at the station. Throughout the 137 counties there are farmer co-operators who assist in the experiments by tests in the various communities.

The work of the experiment station is making possible a continuous uptrend throughout this wide area in better types and better production of everything that is grown or raised on the ranches and farms and in the town gardens and orchards as well.

In addition to the U. S. agricultural field station at Woodward, adjoining it on 150 acres is a dairy experiment station of the U. S. Bureau of Dairy Industry. Established in 1921 this is one of the nine such dairy field stations in the United States. It engages in the study of efficient and proper utilization of feed crops; also does research in the breeding of purebred dairy cattle, bred for high milk and fat production.

Petroleum Expansion

American petroleum interests plan to spend more than \$352,000,000 on domestic and foreign refining facilities as soon as materials are available, according to a recent statement by Deputy Petroleum Administrator Ralph K. Davies. The huge sum will be divided almost equally between domestic refinery construction and foreign construction, excluding any rebuilding or rehabilitation of facilities in areas now occupied by the enemy.

Southern Industrial Expansion--October

(Continued from page 54)

Service Gas Co., Bartlesville, filed application with Federal Power Commission and WPB for extension and improvements to gas lines in Oklahoma; cost approximately \$1,500,000.

SOUTH CAROLINA

CHESTER—Locker Plant—O. P. Lutz plans erection and operation of freezer locker plant.

COLUMBIA—Radio Station—Inter-City Advertising Co. has approval of Federal Communications Commission for erection of 250-watt radio station.

ORANGEBURG—Mill—South Carolina Cotton Mills, Inc., recently chartered with \$125,000 capital by Nicholas Handal and brothers of New York, acquired Santee Cotton Mill plant.

WEST COLUMBIA—Ice Plant—Southeastern Construction Co., Charlotte, N. C., has contract for construction of ice plant for Brookland Ice & Fuel Co.

TENNESSEE

CHATTANOOGA—Expansion — Plans approved and contract signed for expansion of production facilities at Volunteer Ordnance Works at Tyner; Hercules Powder Co., operating contractor.

COPPERHILL—Building—H. K. Ferguson, Cleveland, Ohio, has contract for construction of laboratory building to be constructed near present plant at Copperhill for Tennessee Copper Co.; estimated cost \$250,000.

MEMPHIS—Bottling Plant—Canada Dry Ginger Ale, Inc., New York City, plans bottling plant.

MEMPHIS—Expansion — Ford Motor Co. plans \$500,000 post-war addition to local plant; will increase assembly and storage space by approximately 74,000 square feet; plans include complete conveyor system in the parts division.

MEMPHIS—Expansion — Tennessee Brewing Co. acquired additional site for expansion.

MEMPHIS — Plant — Abraham Brothers Packing Co. soon call for bids for construction of 1-story rendering plant; cost \$100,000.

TEXAS

Railroad—Chicago-Rock Island and Pacific Railway Co. has been authorized by WPB to construct a \$164,985 centralized train control system between Dallas and Fort Worth; work to begin the first of 1945.

TEXAS—Equipment—Defense Plant Corp. closed contract with English Freight Co., Dallas, to provide automobile equipment for operation in States of Texas and Oklahoma; cost \$25,000.

TEXAS—Line—Lone Star Production Co., Marshall, will lay pipe line from its Trinidad plant to Carthage Field of Panola County; cost \$2,500,000.

ALAMO—Plant—Leonard Johnson & James King, erect packing plant; owner builds.

ALAMO—Plant Remodeling—Alamo Products Co. plans remodeling processing plant; approximate cost, \$61,000.

DALLAS—Plant—Dr. Pepper Co. will construct \$300,000 office and plant.

DENTON—Line—Denton County Electric Co-operative plans construction of rural power line in Denton, Wise, Grayson, Cooke, Collin and Tarrant Counties, 310 miles.

GIDDINGS — Remodeling — Fairmont Creamery Co. plans remodeling building; post-war; cost \$100,000.

HOUSTON—Abattoir—Albert Meyerson has contract for abattoir for Pauly Packing Co.

HOUSTON—Chemical Building—W. S. Bellows Construction Co. has contract at \$96,000 for erecting chemical building for Houston Oilfield Material Co.

HOUSTON — Expansion — Cook Paint & (Continued on page 78)

Southern Shipbuilding helps accomplish *"the impossible"*

IN 1934, only two steel merchant ships of over 2,000 gross tons were built in this country.

From 1939 up to August of this year, the amazing total of 3,394 passenger, tanker and cargo ships were completed in shipyards of the United States—nearly four times the pre-war number in existence.

In addition, more than 800 combat ships and almost 50,000 landing craft have been built, to give the nation's shipbuilders a record of having achieved the seemingly impossible.

South Atlantic and Gulf Coast builders have contributed a tremendous amount to these totals—including 843 merchant ships of gross tonnage over 2,000, more than existed under the American flag at the start of the war.

Southern shipbuilders, concentrating their purpose and energy on the nation's war program, have in so doing substantially increased the prosperity of the South. Millions of dollars' worth of materials have been purchased from local suppliers. Business channels swell with the earnings—and the savings—of shipyard workers. Many of these workers have learned new trades that will prove valuable in building a great industrial South.

In supplying so much of the fine steels that have gone into this construction, T.C.I. metallurgists and steel engineers have worked shoulder to shoulder with Southern shipbuilders. From this cooperation has come a steady flow of plates, shapes, forgings, sheets and bars in staggering tonnages. A new 140-inch plate mill, built by T.C.I. and put into operation during 1942, has helped shipyards meet demands.

As the shipbuilding industry faces the inspiring challenge of the future, when the efficiency of our ships will be put to the test of peacetime competition, T.C.I. stands ready to serve with new and better steel products that have been developed under the stimulus of war.

U-S-S Steel Products manufactured in our mills include:

- Rolled, forged and drawn steel products.
- Structural shapes, plates, bars, small shapes, agricultural shapes, tool steel, strip, hoops, cotton ties.
- Black, galvanized and special finish sheets.
- Wire and wire products.
- Reinforcing bars.
- Rails, track accessories, axles and forgings.
- Culverts, Panelbilt prefabricated steel buildings, cold-formed steel sections.
- U-S-S High Strength Steels and U-S-S Abrasion-Resisting Steels.
- Semi-finished products, pig iron and ferro-manganese.



TENNESSEE COAL, IRON & RAILROAD COMPANY
Birmingham, Alabama

United States Steel Export Company, New York

UNITED STATES STEEL

NOVEMBER NINETEEN FORTY-FOUR

MANUFACTURERS Do You Need-

Long term bank loans—for financing new machinery or re-converting plant facilities?

Short term bank loans—for working capital requirements?

T loans—for obtaining funds promptly when government contracts are ended, without waiting for final settlement?

V or VT loans—for meeting the extraordinary credit needs of a company engaged in production essential to the war effort?

First and Merchants will be glad to discuss your loan requirements with you at any time.

FIRST AND MERCHANTS National Bank of Richmond

John M. Miller, Jr., Chairman of the Board

H. Hiter Harris, President

CAPITAL AND SURPLUS SIX MILLION DOLLARS

Member Federal Deposit Insurance Corporation

NATURAL GAS

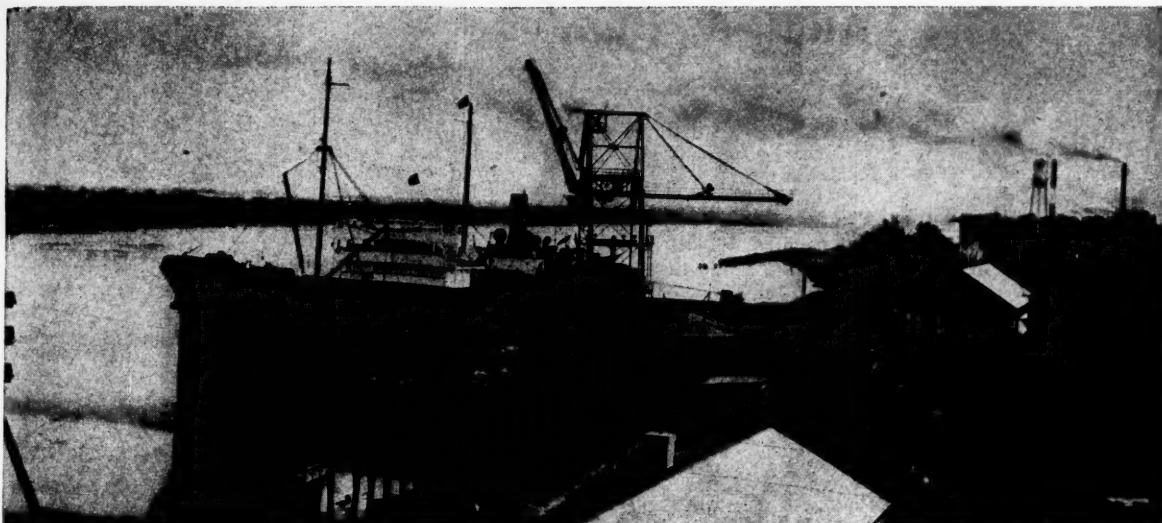
A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

SOUTHERN NATURAL GAS COMPANY

Watts Building

Birmingham, Ala.



You, too, should consider

PORT WENTWORTH

(SAVANNAH, GEORGIA)

The advantage of a deep harbor in the Port Wentworth area was recognized by National Gypsum Company (dock reproduced above) when it selected this location in 1938 for its million dollar plant. It began operations in May, 1939.



**OTHER PRE-WAR INDUSTRIES
ON THE WATERFRONT AT PORT WENTWORTH INCLUDE:**

ATLANTIC CREOSOTING COMPANY
CERTAIN-TEED PRODUCTS CORPORATION
DIXIE ASPHALT PRODUCTS CORPORATION

PAN AMERICAN PETROLEUM & TRANSPORT CO.
SAVANNAH RIVER LUMBER CORPORATION
SAVANNAH SUGAR REFINING CORPORATION

YOUR POST-WAR PLANT

A large foreign commerce is indicated after the war. Your plant located on a part of our 3,000 acres at Port Wentworth (served by our affiliate, Savannah & Atlanta Railway Company), may be the answer to your effective participation in this business.

To industrialists considering post-war plant locations in the South—let us prepare a brochure covering the advantages of Port Wentworth available to your particular industry—no obligation—all in confidence.

PORT WENTWORTH CORPORATION

17 E. 42nd St., New York 17, N. Y.

Savannah, Ga.: P. O. Box 1094

The Callaway Plan

(Continued from page 37)

state as possible. Each corporation will have seven stockholders, each of whom will put up \$1,000. Each corporation will elect a president, secretary, treasurer, etc., buy 100 acres of land and employ a farmer. This land will cost an average of \$30 an acre, or \$3,000.

The remaining \$4,000 of the investment will be spent just as rapidly as the work may be done, in building up the land, making it cost on the average of \$70 an acre instead of \$30. In many sections, this land will cost considerably less, say, \$20 per acre. In this case the corporation will have \$5,000, or an average of \$50 per acre to produce \$70 land.

The 100 farms are to be bought as soon as practical, but preferably prior to the first of the coming year.

After the land has been built up

each corporation is to borrow not more than \$3,000 from the bank, for current inventory, cows, machinery on hand, etc.

The exact plan for building up the land will be left to the corporation in each case. Conditions, possibilities, etc., will vary from section to section and from farm to farm.

"I might know," says Mr. Callaway, "how I would do it in a particular case, but we would like for those in each corporation to decide for themselves, after getting the advice of the Soil Conservation Service, the Agricultural Extension Service, including their specialists and county agents, the experiment stations of the university system, and anyone else who can give competent advice.

"... we have for this problem the full cooperation of the agricultural agencies of the University of Geor-

gia and of the Soil Conservation Service... the Soil Conservation Service will furnish us with three men... the Georgia Experiment Station, the Georgia Coastal Plains Experiment Station and the Agricultural Extension Service, will each furnish us with one man. The 100 farms will be divided into three groups, two of them containing 33 farms each, and the third containing 34 farms. The six men will work in groups of two each, in the three respective groups of the farms, and each group of two men will be strategically located in accordance with the location of the farms."

Each of the farms, when purchased, will be surveyed by these trained, experienced men. They will make the necessary maps and photographs, and their advice as to the best procedure to follow in each case will be available to all who desire it. A year later, and once each year for three years, they will return for further surveys.

This and all other services will be supplied by the Agricultural Panel. There will be no fees, dues or assessments on any of the individual corporations or farmers.

On the basis of the annual surveys and appraisals, the 100 farms will be graded and ranked from one to 100. Cash prizes are to be awarded to the 100 managers. A plan comparable to the following will be used: The one chosen as having made the best showing the first year will receive \$100; the next best, \$99, the next, \$98; and so on. The manager with the poorest relative showing will receive \$1. It is realized that the monetary value of these prizes is not in itself a great incentive, but will furnish a means of keeping up with the developments of the year.

"It is my earnest hope," said Mr. Callaway, "that the best leadership in the state, in all walks of life, will be ready to serve as the 700 stockholders in these 100 corporations. Where your treasure is, there is your heart also."

A good half of the desired 100 corporations are already formed, and many more are in the process of formation. The enthusiasm shown for the plan has encouraged its proponents to anticipate a completed roster of 100 corporations by January 1; then 700 men, leaders

(Continued on page 76)

Bell Builds B-29's in Georgia Plant

(Continued from page 43)



assembly line. Still other workers have learned the secrets of anodizing, cadmium-plating and heat treating of aluminum alloys.

Negro workers have carved a niche for themselves in the shearing and stack routing and drilling departments.

Spot-welding and metal forming have opened new avenues to hundreds of hitherto untried men and women. Some have learned how to turn out complicated curved parts on massive rolls, while others handle giant hydraulic presses and drop hammers that press cold sheet metal into many intricate shapes where deep draws are required.

The basic operations, however, require skilful handling of power-

driven drills motors and rivet guns. Every newly hired riveter or driller who enters the Bell Bomber plant is required to pass a comprehensive test at one of the proving benches presided over by representatives of the manufacturing, inspection and training departments. Those who cannot pass the tests in the use of the rivet gun and bucking bar or in drilling or countersinking holes must undergo further training until they can do these jobs satisfactorily.

Many employees of Bell Aircraft's Georgia Division have realized that further education will lead to advancement. Hundreds of them are taking advantage of national defense vocational education courses, which include high school subjects. Many more spend two or three evenings a week at Georgia Tech studying courses in engineering, science and management for war training.

They are preparing themselves to step into more responsible jobs in the busy Bell Bomber plant, and they feel confident that they will be able to apply their newly acquired knowledge and skills when the war is ended and they can return to peacetime pursuits.



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—a “plus” for your structural jobs

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What is this quality worth to you? . . . It means that every job American Bridge undertakes—whether it is the steelwork for a generating station, the towers for a transmission line, a substation structure, or an electrification project—will profit from an

unsurpassed background of structural experience. It means that each project, no matter how large or how small, will receive the same painstaking care in planning, fabrication and construction.

Engineering resourcefulness gave our organization its worldwide scope of operation. This same resourcefulness now is enabling us to serve the war needs of our country in numerous ways, including even the manufacture of high-precision military equipment. We value this opportunity. But when peace returns, you'll find us “doing business at the old stand” as fabricators and erectors of structural steel, better prepared than ever to serve your post-war needs.



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UNITED STATES STEEL

Industrial Utilization of Southern Farm Crops

(Continued from page 39)

The sweetpotato was one of the first Southern farm crops to enter the industrial field on a large scale. Agricultural scientists started the production of sweetpotato starch on a commercial scale at Laurel, Mississippi, in 1934. Production has been improved and expanded at the Laurel plant until it reached a peak of more than two-and-a-half million pounds of starch when potatoes were plentiful in 1939. Between 10 and 11 pounds of high-grade white starch are now obtained per bushel of potatoes in addition to a byproduct or pulp, which is used as livestock feed. Based on the results of research by agricultural scientists, a corporation at Clewiston, Florida, is constructing a large sweetpotato starch plant with a capacity of around 50 million pounds of starch per year. This plant, when completed, will cost several million dollars, and be large enough to produce a good share of the root starch we imported each year before the war, as well as providing a market for starch potatoes in its area.

Apple sirup, a delicious food product, which can be made from sound but off-grade apples, is being produced commercially in more than half a dozen plants in the United States and Canada as a result of investigations in one of the Bureau's large research laboratories. It can also be made from apple cores and peels from canning and dehydration plants. This new product makes a good table sirup and is especially fine for baking cakes since its moisture-holding qualities prevent the cakes from drying out so rapidly. Apple sirup is also a good substitute for glycerine which is needed in making wartime explosives. It is being used now rather extensively as a substitute for glycerine by one of the large manufacturers of cigarettes. More than 4 million pounds of the sirup were made last year, and the amount will probably be increased after the war when it becomes possible to secure the necessary manufacturing equipment.

Apple juice with the natural

"fresh cider" taste is a very new development that is an outgrowth of the research on apple sirup. The new product is a full-flavored apple juice concentrate which can be reconstituted, by the mere addition of water, to an apple juice that is indistinguishable in taste and aroma from fresh cider. It is made by heating fresh apple juice rapidly enough to avoid modifying its natural flavor, vaporizing the volatile flavoring constituents, and then collecting them as a 150-fold essence from a simple fractionating column. The new concentrate requires only about one-fifth the space needed for unconcentrated juice, and it is self-preserving, two distinct advantages of considerable economic importance. While this process refers specifically to the recovery of the flavoring constituents of apple juice, it is believed that it can be applied also to the recovery of flavors from other fruits and even berry juices. The long growing season and the wide variety of fruits and berries that can be produced in the sixteen southern States served by the MANUFACTURERS RECORD make this a promising post-war enterprise for many communities in this region.

One of the biggest research projects in the New Orleans laboratory is directed toward the development of a cotton tire cord that will be superior to the cotton cord used today. Around eight percent of the cotton normally consumed, or approximately 700,000 bales, goes into the manufacture of automobile tires and any development that will increase this amount will be a help to the cotton industry. An elaborate and exhaustive program which involves cotton varieties is under way. Road tests on tires made

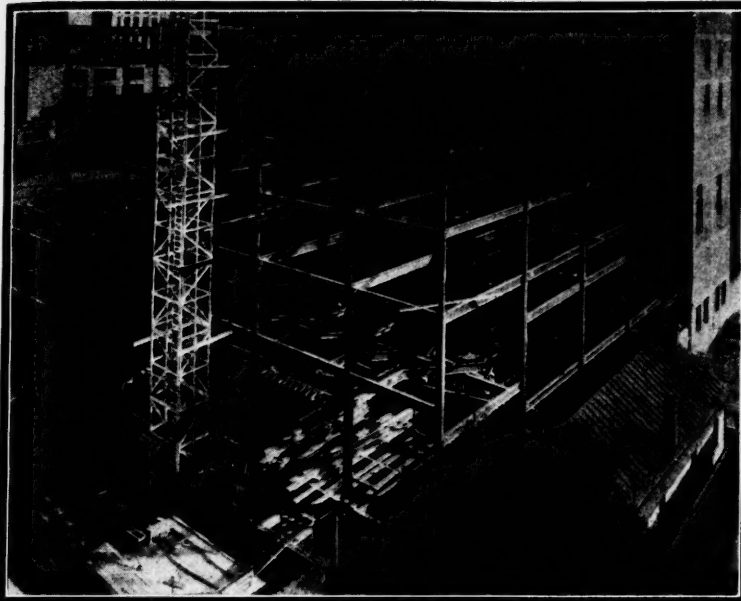
Dr. Orville E. May, chief of the Bureau of Agricultural and Industrial Chemistry, U. S. Department of Agriculture, is one of the nation's foremost Chemurgists and has devoted his career to the field of chemistry. Dr. May holds A. B., M. S., and Ph. D. degrees from Georgetown University and is a member of several chemical societies.

from selected varieties of cotton show that cotton cords can be produced that are definitely superior to the cotton cords in use today. The research is being continued in the hope of further expanding the outlet for American cotton.

Another promising outlet for cotton, though not so large as the one for tire cord, is afforded in the new all-cotton bandage which is being developed in the New Orleans laboratory. This bandage tends to fit and cling better than ordinary gauze and allows greater freedom of movement in bandaged joints. The particularly valuable properties of the new fabric are a high degree of stretchability, which makes the bandage partly self-fitting so that it conforms to irregular surfaces, sufficient elasticity to make it flexible and somewhat self-tightening without restricting the circulation of the blood, and a roughened surface which causes layers of bandage to cling together in contrast to the slipperiness of ordinary gauze. These new characteristics have been found especially desirable in head, knee, arm, and elbow dressings. The Surgical Department of the U. S. Naval Hospital in New Orleans reported, after six months of experimental tests with the new bandage, that it is superior to regular gauze, particularly for orthopedic use. It is made by specially treating ordinary open-weave gauze and is now in pilot-plant production.

Crude citrus pectin can now be made from grapefruit cannery waste at low processing cost as a result of research by agricultural scientists. The crude pectin, or refined pomace, is produced by leaching properly treated grapefruit peel with water and then drying and grinding the leached peel. Grapefruit cannery residue contains from 2½ to 4 percent of pectin. During the 1942-43 season Florida canneries processed more than 17½ million boxes of grapefruit, yielding more than 322,000 tons of peel and pulp. Less than 60 percent of this waste material was used commercially, the balance being hauled and dumped on pastures, groves, and wasteland.

(Continued on page 72)



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APPOINTED FUHRER BY PRESIDENTIAL DECREE

Courtesy The Chicago Tribune

Industrial Utilization of Southern Farm Crops

(Continued from page 70)

This is the source of the raw material that can now be used for making either crude or pure pectin. The manufacture of pure powdered pectin requires elaborate and specialized equipment, but the refined pomace or crude pectin which may be used by jam and jelly makers as a source of pectin can be made in equipment, most of which is already available. Research has passed through the pilot-plant stage and one plant in Florida is now producing the new product on a commercial scale.

When war threatened to cut off imports of natural rubber, agricultural scientists worked out an economical method for the commercial production of butylene glycol by the fermentation of corn and wheat. Butylene glycol may be used in making anti-freeze for automobile radiators, in the production of com-

mercial solvents, or converted into butadiene and used in making synthetic rubber. When used in the production of synthetic rubber a bushel of corn will produce 14 pounds of butylene glycol and this, in turn, can be converted into 7 pounds of high quality butadiene that can be used in making synthetic rubber. The process has been proven on a large semi-works scale and complete operating and cost details have been developed.

The gum naval stores industry, which means the production and distribution of turpentine and rosin, is recognized as an agricultural enterprise of increasing importance over a large area of the South.

Naval stores being one of the oldest industries in the United States, it has naturally undergone a great many changes. But more constructive changes have taken place in the last 10 or 15 years than in any other

similar period because scientific research has been intensified and increased in an effort to help solve some of the industry's most complex problems. The Naval Stores Station at Olustee, Florida, which is a part of the Bureau of Agricultural and Industrial Chemistry, has been of tremendous help to the industry. Its pilot-plant research has been instrumental in increasing the use of the modern gum cleaning still. This improvement by affording a market for crude gum has greatly increased the number of farmers who turpentine the pine trees on their land. It is estimated that there are now more than 20,000 of these small gum farmers who are profiting from the application of the results of this one piece of research in the naval stores field.

To relieve wartime shortages of gums and other adhesives needed in bookbinding and for making gummed tape, gummed paper, and paper boxes, the New Orleans laboratory undertook the development of such products from cottonseed and peanut meals. Results thus far show that it is possible to prepare peanut-protein glues suitable for use in the manufacture of gummed tape with good adhesive strength. The dried glue film has good appearance, is less hygroscopic than some gum adhesives, and becomes tacky and sticks tenaciously as soon as it is remoistened and applied to another surface. Unique characteristics of peanut-protein glues, such as their tackiness and fluidity at room temperature, make them suitable for certain gluing operations for which vegetable proteins have heretofore been considered unsuitable. The research is being continued in the hope of finding another outlet for peanuts.

In an effort to find a profitable use for the large tonnage of waste leaves that occur in the production and processing of vegetable crops, agricultural scientists have prepared vegetable leaf meals which have produced excellent results in poultry feeds. The blade portions of the leaves, free of stems, were found to be exceptionally high in protein, containing from 30 to 36 percent in some cases, which is considerably higher than alfalfa-leaf meal, and approaches the 40 to 45

(Continued on page 74)

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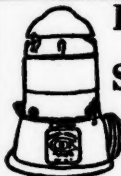
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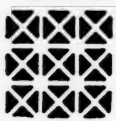
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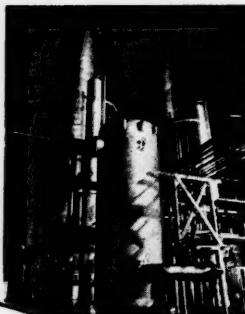
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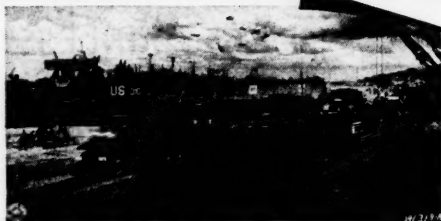
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Southern Farm Crop Utilization

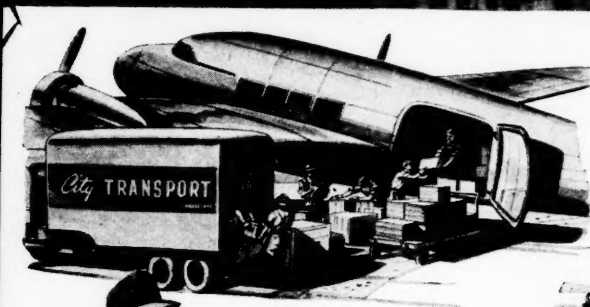
(Continued from page 72)

percent for oil meals. Research revealed that the leaves are also high in carotene, or pro-vitamin A, and in riboflavin, both of which are needed in poultry feeds. Practical feeding tests were made by the Delaware Agriculture Experiment Station where these meals were incorporated into the mash. Chicks fed on the vegetable leaf meals were compared with chicks fed on alfalfa-leaf meal. Chicks receiving broccoli-leaf meal made the fastest growth. Carrot, lima bean, and turnip meals were about equal to alfalfa, and pea vine meal a little lower. The flavor of the meat of all broilers fed on the vegetable leaf meals was good, but that of the birds fed on broccoli-leaf meal was the best and unusually fine. It is estimated that more than 2½ million tons of waste occur annually in the production and processing of nine vegetables. Research is being continued in the hope of finding profitable outlets for some of this material.

Research is also under way on many other farm wastes in the hope of finding new and wider outlets for these. For example, certain delicate and important parts of naval aircraft are now being cleaned rapidly and successfully by ground corn-cobs. The product was developed as an emergency wartime project by agricultural scientists in one of the four Regional Laboratories in cooperation with the Navy. Research in the laboratory's agricultural waste residues division revealed that corn-cobs, when ground so as to pass through a 10- and be retained on a 32-mesh screen and used in ordinary sandblasting guns, would remove organic and softer mineral deposits without any appreciable wear on the metal parts being cleaned. This product is now in commercial production, and the entire output is going to the Navy. The probability is that the production of this material will develop into a small post-war business for use in cleaning automobile and airplane engines.

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(Continued on page 76)

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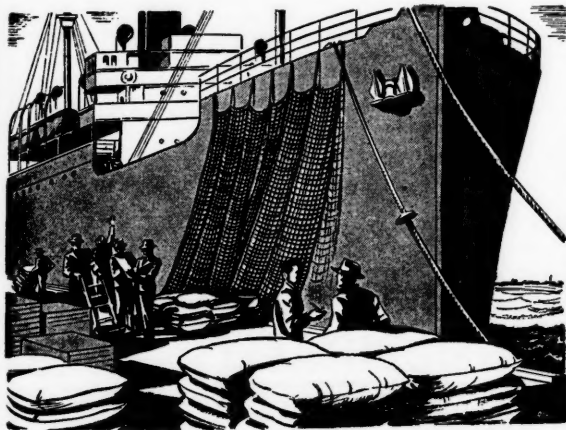
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The Callaway Plan

(Continued from page 68)

in their respective communities, will be spending some of their time and thought and energies on the plan, and seeing a practical, earthy demonstration of the many-sided profit therein.

To stimulate the close interest of the stockholders and managers certain rules have been promulgated. No corporation may accept land free, as this would give the corporation an unfair advantage over others. No person may buy more than one share of stock, or a one-seventh interest, in a corporation. A corporation may not borrow more than \$3,000, as it would likewise give the corporation an unfair advantage in the friendly competition. Though not prohibited, it is considered impractical for a stockholder to also be the manager of the farm. Also to keep the competition on a basis easy to adjudicate, each farm will have as close to 100 acres as possible.

In these and other not iron-clad regulations, the "Callaway Plan" is

Southern Farm Crop Utilization

(Continued from page 74)

able growing season the South is particularly adapted to the large-scale production of cotton, sweet-potatoes, soybeans, peanuts and other crops that are finding increased uses in the industrial field. The South also produces large quantities of agricultural residues in the form of stalks, straws, husks, hulls, and so on. Scientists are searching for new and wider use for all of these in the hope of improving the income of the producer, and increasing the number of industries that draw their raw materials from the farm.

drawing 700 of Georgia's progressive partisans into a friendly and absorbing contest, one from which only good can emerge, a dramatic demonstration that poor land can be made good and good land better; and a gain made for the state, the nation and the agricultural world.

Southern Furniture Leads the Nation

(Continued from page 45)


ing machinery has turned out numbers of items for war needs, both cheaply and quick, and by sheer ingenuity and adaptability he has kept his plants running in spite of tremendous labor losses to the war and war industry, plus critical shortages of every raw material required. Plants that normally had from 5 to 10 per cent women employees now employ as high as 30 per cent women.

The southern furniture industry is facing its future with confidence today. In the 30 preceding years it has been tried by wars and depressions, and yet has managed to grow and develop beyond its fondest expectations. The post-war period will find it still young in management and ideas, and more ready with experience and equipment than ever before.

Maryland Minerals for 1943

Coal, sand and gravel, cement, stone and clay led among the \$17,095,000 in minerals produced last year in Maryland, the Bureau of Mines reported recently in its 1943 survey for the State. Since 1911 minerals of the Free State have totaled \$495,565,000.

Maryland's 1943 coal production was valued at 5,402,000; sand and gravel, \$4,115,000; stone, \$2,030,000; clay products, \$1,400,000; raw clay, \$131,000; and lime, \$531,000. Figures on cement production are confidential.

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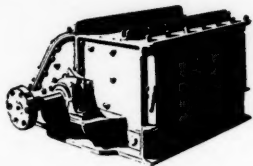
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Southern Industrial Expansion

(Continued from page 64)

Varnish Co. acquired 2 1/2 acres adjoining present building for expansion.

HOUSTON—Plant—Southern Warehouse Corp. plans construction of rice drying plant.

HOUSTON—Plant Addition—Regan Forge and Engineering Co. acquired site for plant addition; post-war.

HOUSTON—Plant Building—Daniel Orifice Fitting Co. plans combination office building and fabrication shop; cost, \$25,000.

McALLEN—Addition—South Texas Produce Co. plans addition to packing plant; Hammond addition; cost, \$15,000.

MERCEDES—Packing Plant Addition—H. B. Swedlund & Sons, Harlingen, has contract for packing plant addition, Mercedes Citrus Growers, owners.

MERCEDES—Addition—Rio Foods, Inc., erect addition to processing plant.

MISSION—Plant—Don L. Smith, Fruit & Vegetable Farms, Mission, will construct processing plant, N. Conway; private plans; owner builds.

MOULTON—Cold Storage—Stahl Brothers of Gonzales, contemplates installing cold storage plant.

NEW BRAUNFELS—Extension—Alfred Herry has contract for extension to New Braunfels Textile Mills; includes new building to house 116 looms, cost approximately \$48,000.

PANOLA COUNTY—Line—Rogers Lacy of Longview, plans recycling plant.

RAYMONDVILLE—Cotton Oil Mill—Southwestern Cotton Oil Mill, Inc., erect \$100,000 mill.

SANTA ROSA—Remodeling—Santa Rosa Ice Co., Edcouch, plans remodeling ice plant; cost, \$30,000.

SHAMROCK—Expansion—Consolidated Gas Utilities Corp., Oklahoma City, Okla., in-

stalling an additional 400 h.p. Clark Brothers gas engine in Pitsch Compressor Station near Shamrock to increase capacity of 14-in. main line from Wheeler County, Tex., to Lyons, Kansas.

WESLACO—Machine Shop—Valley Growers Gin & Supply Co., Weslaco, plans construction of machine shop.

VIRGINIA

Plant—Celanese Corp. of America, Cumberland, Md., reported, plan post-war erection of new knitting mill; probably a 500-machine tricott mill for manufacturing of fine underwear cloths and dress goods; site reported selected in Virginia.

HOPEWELL—Expansion—Hercules Powder Co. has work in progress on expansion of ethyl cellulose plant, estimated cost \$500,000 with equipment.

LURAY—Publishing—Dominion Publishing Co., Inc., capital \$115,000, John Locke Green, President, Arlington; publishing and printing.

RADFORD—Publishing—Montgomery-Radford Publishing Corp., capital, \$50,000; Asa W. Reese, Pres., printing and publishing.

South's Contracts Higher

(Continued from page 56)

laxing construction curbs."

The Associated General Contractors of America advocate the immediate beginning of construction where it will not

impede the war effort. William Muirhead, head of that organization and a prominent southern contractor, recently stated that in many cases much time, money and manpower and materials can be saved if badly needed maintenance, repairs, reconstruction or replacements are done now.

Mr. Muirhead divides the pre-postwar and postwar construction into four periods. The first is required immediately. The second will be needed after the end of the war with Germany. The third will be during the reconversion period to provide large numbers of jobs and keep up industrial production, and the fourth, the building of a greater America by all forms of activity that will require a tremendous volume of construction.

The construction industry, he emphasizes, has few important conversion problems. Construction is an industry of unusual flexibility and adaptability, which can switch from one type of work to another without delay. War construction has required essentially the same operations, materials, equipment and men that peacetime construction requires.

"Unless federal regulations, the lack of plans or the unwillingness of organizations to invest in construction prevent it," he says, "the industry will be able to provide every community throughout the country where it is necessary, a large volume of work to help stabilize employment conditions."

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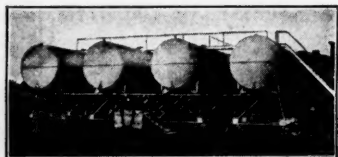
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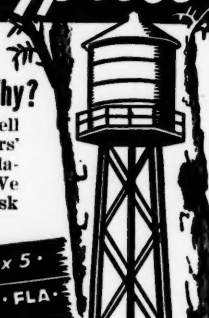
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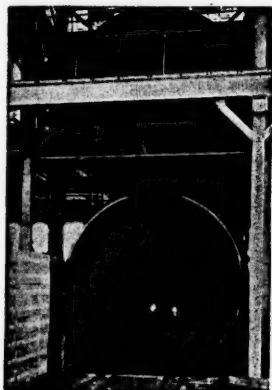
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Look Ahead, Look South!

(Continued from page 40)

I might add, too, that the necessity for prompt action is recognized by those of us who are thus trying to translate hopes into realities. We all know well that the pattern of industrial activity in this country will be determined for years to come by what happens in the reconversion period immediately after the present war ends.

If ever there was a time when every element of the South—labor, management, business, state and local government—should be united and pulling together, this is it! Yet what has happened? Just this—

Perhaps with the best of intentions, some of our Southern governors and their colleagues have been assiduously echoing the great Hoosier poet, James Whitcomb Riley. They have been saying, in effect:

"Don't Look South—'cause the

railroads'll get ya ef you don't watch out!"

The Southern, in common with other railroads and industries and banks and utilities, is doing its utmost to point to the South as the ideal section of the country for industry—with its unlimited natural resources, its favorable climate, its great reservoir of American-born labor, and its unexcelled transportation facilities. Yet much of the good we are trying to do is being neutralized by the continuous publicity sponsored by those who have made a political football out of one of the South's greatest industrial assets—its present pattern of railroad freight rates. And I ask you: does this make sense?

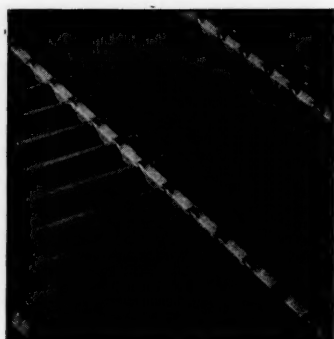
Even if all the charges of discrimination were true, the situation wherein the South is publicized by one group of Southerners as the ideal section of the country for industry and by another group of Southern politicians as the emaciated victim of "freight rate discrimination" is still a worthy subject for a Ripley Believe-It-Or-Not cartoon. It is incomprehensible to me for four reasons:

First, if there are discriminations in the freight rate structure, the governmental machinery to correct them has always been, and always will be available—and the vocal proponents of freight rate "equality" know this.

Second, the shippers of the South; the interests which actually pay the freight bills, are not behind this agitation. Instead they are overwhelmingly opposed to legislative rate-making and political tinkering with the rate structure.

Third, the whole agitation about freight rates is based on the absurd assumption that the railroads have tried to kill the goose that lays its golden eggs.

And fourth, the few who are most vociferous in their criticism of the present freight rate structure are the very persons who should have the real interests of the South always in mind; the very persons who are best fitted by training and experience to appreciate what harmful publicity for the South means; the very persons who stand to profit most from the quiet, orderly settlement of any differences of opinion that may exist. I refer to the small group of Southern politicians



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who persist in keeping this agitation alive in the public press, in the councils of state governments, and in the halls of Congress.

All this, when, of all times, the South should be wholly united in a great drive to cash in on its matchless resources and opportunities.

Why can't the shippers and receivers who pay the freight bills, the railroads which are being branded as enemies of the South, and those in public office who are keeping this agitation alive, get together and agree to take this technical squabble out of politics, out of the press, and relegate it for solution to the rate experts who understand what it's all about and to the government's Interstate Commerce Commission whose 50-year record as a fair and impartial court insures justice to all?

And finally, why can't we follow up such a constructive step by all joining hands for a concerted, intensive drive to insure the South its rightful place in the future economic life of the nation?

The challenge to "Look Ahead—Look South!" would then take on a new meaning—for it would then become the symbol of a fighting team that simply can't be beaten.

Unheralded Alloy Metals

(Continued from page 49)

loying it is used mainly as a "scavenger" but also, in combination with magnesium, in the processing of a metal with a smoother surface. Calcium also has some of the qualities of a blotter, and is used by drug and vitamin makers to take excess moisture from a process.

Calcium, however, is favored chiefly in its "scavenger" role. Most metals when in their pure forms, though having the advantage of rusting or disintegrating very slowly, do not take readily to combination with other elements. But calcium seems to have a passionate desire for almost any element excepting such uncommon gases as helium and argon. Polygamous calcium reacts with chlorine, sulphur, nitrogen, silicon, oxygen or hydrogen; and it is this love for socializing that gives calcium its industrial popularity.

One reason why steel breaks, deteriorates or becomes "fatigued" is because of the tiny impure bits left by the normal refining processes. To remove those impurities and to produce rugged aircraft steel, some calcium (at \$1.25 per lb.) is introduced into the furnace. At once, it reacts with and banishes or "ties up" such impurities as free oxygen. Also, it becomes a gas at furnace temperatures, acting as a stirring or leavening ally which floats the foreign elements to the slag at the top.

But the war-winning job was not finished with the creating of super-alloys. There was the headachy problem of turning out precisioned parts in quantities fast enough.

A case in point was the cups or paddles on supercharger turbines. The supercharger crams air into an airplane motor and thus permits efficient combustion in the thin air of the stratosphere. The turbine, spun by exhaust gases at terrific speeds, must survive torturous heat and centrifugal force.

A modification of an alloy called Stellite, produced by Union Carbide, was found to be suitable material for the paddles, but as it is

one of the hardest of steels, hours were required to machine one of the small paddles to the precise exactness necessary. The services wanted tens of thousands per day. They got them.

The paddles are now cast by a process called "precision casting," one developed and used in pre-war production of surgical and dental equipment by the Austenal Laboratories. This refined casting turns out parts with microscopic nicety and a smoothness which leaves little machining to be done.

Austenal makes a replica of the needed part in wax, then surrounds it with a fine sand bound together with ethyl silicate. After the wax is melted out, the resulting mold is as smooth as glass and will stand the high temperatures used in handling Stellite. Delicate and intricate parts, needing a minimum of machining, are thus cast on a quantity-production basis.

Huntsville Air Service Planned

Penn-Central Airlines will inaugurate service to Huntsville, Alabama, early in November, according to J. J. O'Donovan, vice president of the lines.



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The South Beckons

(Continued from page 41)

The raw materials, the pulp wood, coal and lime were handy; rail and water facilities were ample, as was a supply of high-type labor. Being a man who was concerned with the material and spiritual welfare of his associates and employees, he investigated the churches, schools, universities, libraries, marketing centers and other local advantages and found them encouraging. Most of all, he favored the over-all conditions under which he and his co-workers would produce and live in the South.

In 1929, all of the equipment at Decatur was moved to Tuscaloosa, where paper and paper bag produc-

tion was concentrated. The whole Braithwaite plant was likewise transferred to Tuscaloosa in 1931. Because of the diversity of product and the concentration of manufacturing in the South, a new corporate name, that of the Gulf States Paper Corporation, was selected.

The company now spends \$7,000 daily for wages, salaries, wood and supplies. Its production consumes 200 tons of paper daily. Its modern machines have a production capacity of 10,000,000 to 12,000,000 paper bags per day.

Mr. Westervelt considered the South the "nation's economic opportunity No. 1," and the Gulf States Paper Corporation is proof of how right he was.

Todd Southern Shipyards

(Continued from page 51)

to complete conversions—have demanded extraordinary skills and extraordinary craftsmanship. But no job, however seemingly impossible of attainment, has ever failed to be completed, and completed expeditiously and efficiently.

Todd's Southern shipyards—links in a mighty industrial chain now totally geared for war—are carrying on in a great American tradition, a tradition implicit in the Todd workers' challenge: "Show us the job we cannot do!" So far, it hasn't been found.

Victory Ship Makes "Clean Sweep" On Trial Trip

(Continued from page 28)

dangling as they moved upward to trip over baffleplates and turn sidewise to slip into their respective hawsepipes. Fire control systems, the general alarm and communication systems were also among the equipment tested.

Speed, together with flexible design which will allow changes to accommodate passengers, is expected to place the Victory type ship in the vanguard of the United States merchant fleet that will bid for world-wide trade after hostilities cease. Officials of both the Bethlehem organization and the Maritime Commission predicted a busy future for the Victory ships. Captain Ness thought so well of the Frederick Victory's performance that he said he would be willing to take the last Fairfield-built Victory ship to sea.

The trial trip occupied the better part of twelve hours from the time the ship was pulled from the outfitting pier on the Patapsco River until the two tugs Justine and Carolyn nosed her back in for as pretty a docking as had been seen for a long time. A new broom flew atop the midship halyards indicating that the Frederick Victory had made a "clean sweep," or in other words had passed the tests with flying colors. (S.A.L.)

Facts About Atlanta

The Industrial Bureau of the Atlanta, Ga., Chamber of Commerce has prepared a 42-page booklet, "Facts in Figures About Atlanta," which is available to interested executives. In pocket size, there is a wealth of data and statistics covering communications, power supplies, transportation, banking and other facilities important to those who would locate in the Gate City of the South.

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